

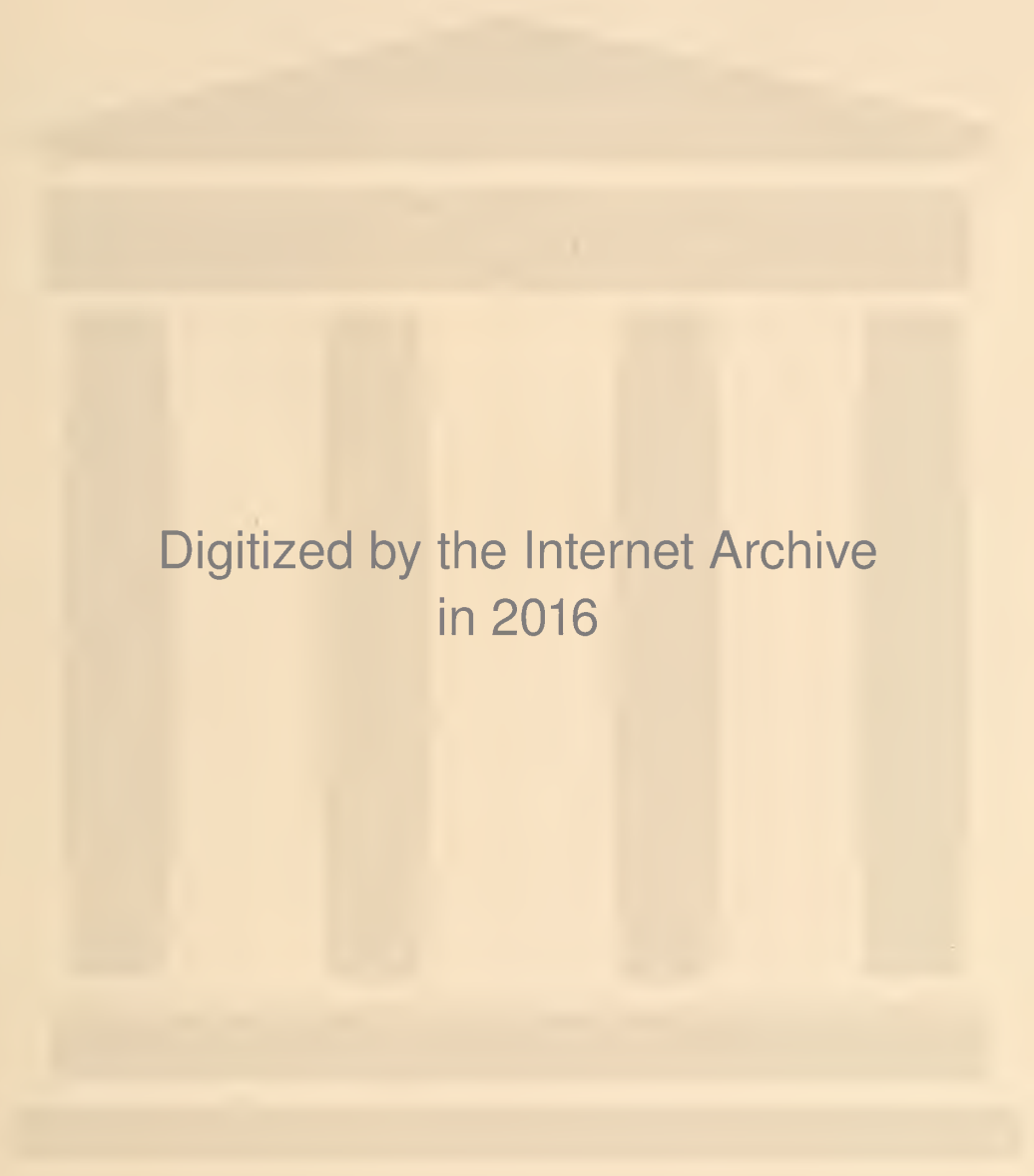


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# HAWAII MEDICAL JOURNAL

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THE N.Y. ACADEMY  
OF MEDICINE

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### THE PROPOSED PLANTATION HEALTH "COOPERATIVE" PLAN

EDITORIAL

PROCEEDINGS OF THE 51st ANNUAL MEETING OF THE  
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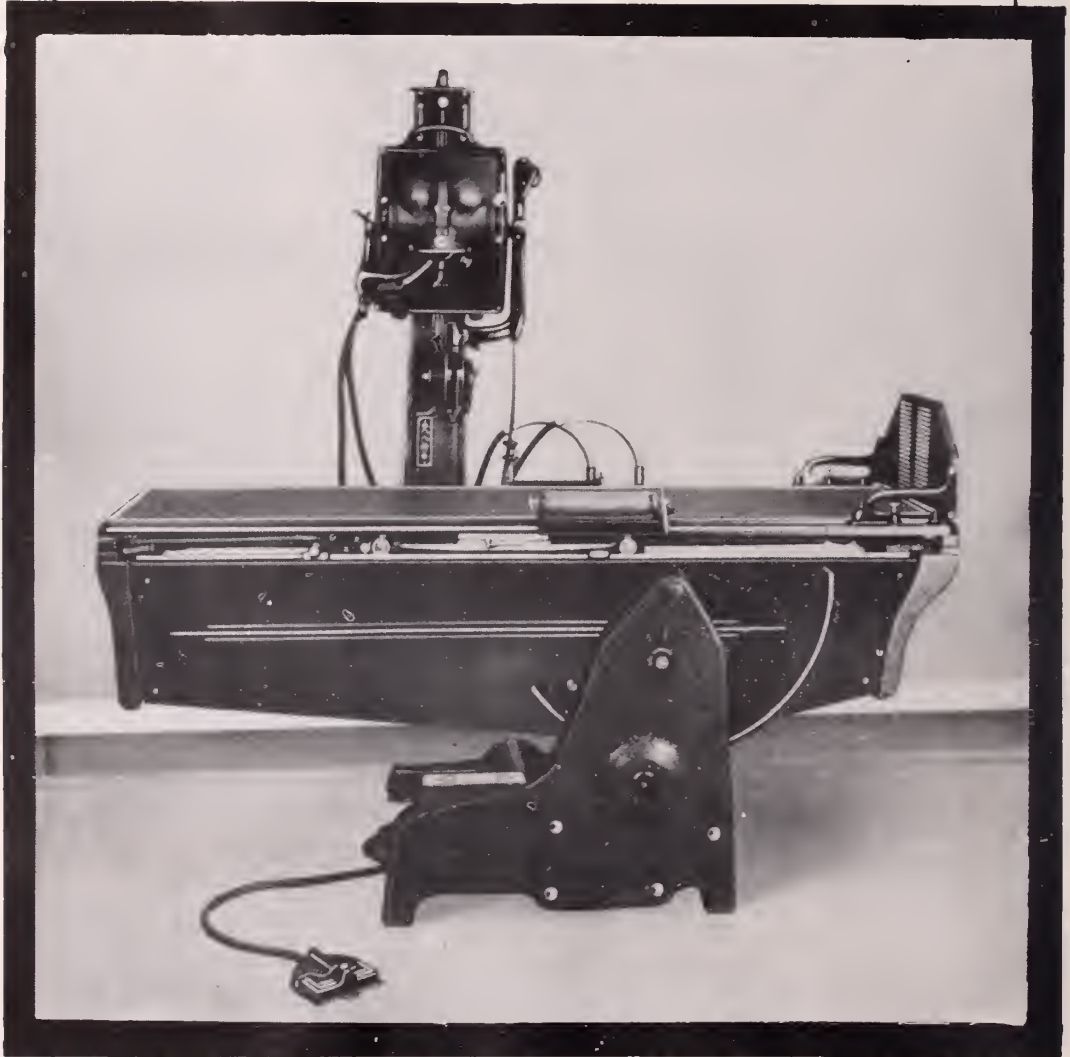
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# Rheumatic Heart Disease in Hawaii

S. E. DOOLITTLE, M. D. AND I. L. TILDEN, M.D.

Honolulu

The following case of severe rheumatic fever with fatal carditis is presented because its occurrence is so unusual in Honolulu that the obvious diagnosis was believed to be the least likely one until it was proven by postmortem examination. Previously the question has been raised as to whether or not typical rheumatic fever actually exists in this community. Several pathologists here who have studied a considerable amount of postmortem material have never seen typical Aschoff bodies, though the characteristic end-results of rheumatic disease of the endocardium have been seen in a number of instances. The clinical manifestations of acute, subacute and chronic rheumatic disease of the joints, heart, and central nervous system are observed by physicians in this community, but they are relatively infrequent and usually mild. Statistics of its incidence, as revealed by a study of hospital admissions and of autopsy findings, will therefore be presented, as well as data obtained from the Bureau of Vital Statistics regarding rheumatic fever as a cause of death in the Territory.

## CASE REPORT

V. D., a 16 year old Portuguese girl was admitted to Queen's Hospital January 1, 1941 and died January 24, 1941. The patient had never been out of the Territory and had spent most of her life on the Island of Maui.

She had a history of recurring attacks of "flu," coming nearly every year and characterized by fever, "stiffness" and soreness, chiefly of the extremities. In August 1939 she developed osteomyelitis of the left femur. This was treated surgically and drainage continued until June 1940. It then closed spontaneously and remained healed until October, when inflammation and drainage recurred. On October 24, 1940, Dr. Craig operated on the left leg, opening the sinus tracts down to the lower half of the femur and removing a sequestrum. It was stated that a mitral murmur was found at the time of this hospitalization.

On December 28, 1940, just three days before

admission to Queen's Hospital, the patient developed fever, associated with pain in several joints. The right knee, dorsum and toes of the right foot, and the right wrist were chiefly affected. No marked swelling or redness was present but there was considerable pain upon motion. A slight non-productive cough and sharp pain in the right chest developed a short time later.

The patient was admitted to the hospital quite apprehensive about the pain in the chest and suffering acutely from the joint pains. Her temperature on admission was 100.8F, pulse 120, and respirations 24. The significant findings on admission were chronic hypertrophic tonsillitis, a systolic apical murmur; stiffness, tenderness, and pain on motion of the right wrist, right knee, and dorsum of the right foot and the toes. Three days after admission the patient was complaining of non-productive paroxysmal cough, pain in the right side of the chest, and some precordial pressure discomfort. The temperature was irregular, having risen once as high as 103.6, with a pulse of 130. There now was found some dullness over the lower lobe of the right lung posteriorly, with bilateral basal rales, most numerous on the right side. X-ray did not reveal a characteristic pleural effusion or pneumonia but suggested pulmonary congestion or pneumonitis. The heart appeared to be slightly enlarged, with mitral configuration. There was a systolic apical murmur with an accentuated pulmonic second sound. The hemoglobin was 11 grams and red blood cells 3,810,000, white blood cells 22,000, with 83 percent polymorphonuclears, 15 percent lymphocytes and 1 percent eosinophiles. Though a diagnosis of acute rheumatic fever with pleurisy was suggested, the rather rapid course, apparent severity of the illness, the high leukocytosis and moderate secondary anemia, with associated heart and lung findings, seemed to suggest more strongly subacute bacterial endocarditis.

During the next few days the temperature showed an average fluctuation between 100 and 102.4; the pulse was between 100 and 120 and respirations varied between 18 and 28. Migrating pain in the joints continued, with involvement of hands, feet, left hip and shoulders, as well as the



joints previously mentioned. There was non-productive cough, pain along the costal margin of the right chest and over the precordium, and at times discomfort on swallowing solid foods. Leukocytosis persisted (about 20,000). The hemoglobin and erythrocyte count did not change and two blood cultures were negative. Urine showed a trace of albumin but no casts or cells and no red blood cells appeared in subsequent frequent examinations.

By the end of the first week abnormal chest findings—dulness, bronchial breath sounds and rales—became more prominent in the left chest, and it was suggested that the lesion was essentially a pneumonic one. Sulfathiazole and then sulfapyridine were administered in moderate doses without particular effect upon the febrile course. Symptoms continued unabated; indeed, they apparently were increased by the toxic symptoms of vomiting and prostration from the drug. Cough was severe and paroxysmal, and sputum was at times blood-streaked. There was marked pain with associated tachycardia and dyspnea. Slight cyanosis developed and oxygen was administered by nasal catheter. Temperature fluctuated between 100 and 103 usually, the pulse varied between 100 and 140, and respirations were increased, between 28 and 40.

Seventeen days after admission a loud, to-and-fro friction sound was heard over the entire precordium. This persisted to the end. The liver was enlarging and tender, but the spleen was not palpable. Physical and X-ray signs now showed apparent increase in the heart shadow and bilateral pleural effusion. It was decided to aspirate the chest the day before death, but this was postponed because of the patient's apprehension. The patient died suddenly at about 4:30 A.M. on January 24, 1941. A tap was made postmortem. Straw-colored fluid was obtained from both pleural spaces and serosanguinous fluid from the pericardial sac. Smears and culture of this fluid showed no organisms. Three blood cultures, taken during life, remained sterile up to four weeks.

Commenting on the case a few days before the death of the patient, one of us said, "In Chicago we would diagnose this case as acute rheumatic carditis." Here, where such an acute, severe infection is practically unknown, we believed that, in spite of negative blood cultures, the case was one of subacute bacterial endocarditis superimposed upon an old rheumatic endocarditis.

An autopsy was done four hours following death. Both pleural cavities contained clear, straw-colored fluid, and marked atelectasis of both lower pulmonary lobes was observed. There

was no gross evidence of consolidation although marked edema was present.

The heart was greatly enlarged, the left ventricle measuring over 2 cm. in thickness and the right over 1 cm. The mitral valve was contracted and presented a row of discrete and confluent bead-like vegetations near the free margin with shortening of the chordae tendineae. The aortic valve presented moderate sclerosis of the valve cusps but no vegetations. The tricuspid and pulmonary valves were normal in appearance.

The liver was larger than average and in most areas presented the "nutmeg" appearance of chronic passive congestion. The other organs showed nothing remarkable.

Microscopic examination revealed the typical findings associated with rheumatic pancarditis. The pericardial surface was covered by a thick layer of fibrin in which leukocytes of all kinds were suspended. Throughout the myocardium of both the right and left ventricles were numerous round to oval sub-miliary nodules, the Aschoff bodies. Under low magnification these appeared as dark streaks usually arranged near blood vessels but not peri-vascular in the strict sense of the word (fig. 1). Under higher magnification the structure of the Aschoff body was well portrayed (figs. 2, 3 & 4). The center consisted of amorphous, hyaline-appearing debris with numerous large endothelial-like cells, often binucleated, arranged at the periphery. These resembled the giant cells of Hodgkins disease, the Sternberg-Reed cells, rather than the Langhans giant cells of tuberculosis. Lymphocytes were present in varying numbers and occasional polynuclear cells could be seen. The mitral valve was thickened and sclerosed and was the seat of marked



Fig. 1. Left ventricle. The Aschoff bodies appear as oval streaks, often in relation to the blood vessels. Low power.

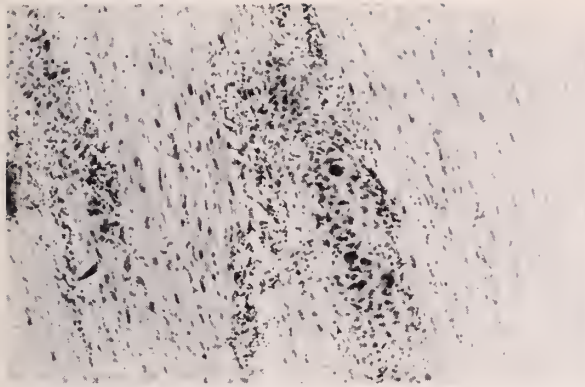


Fig. 2. Aschoff body. The oval appearance of the lesion and the large bi-nucleated Aschoff cells are demonstrated. Medium power.

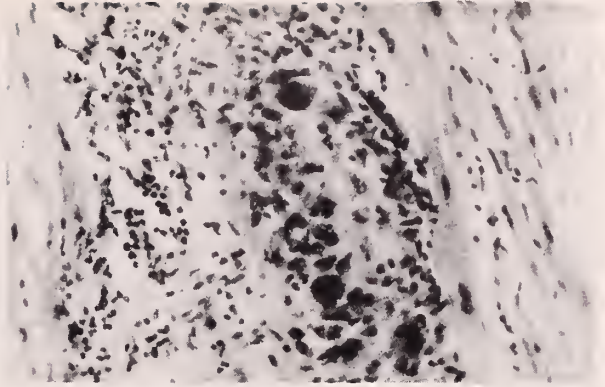


Fig. 3. High power view of Aschoff body showing center composed of broken down collagen and muscle, with Aschoff cells and lymphocytes at the periphery.

fibroblastic proliferation with areas of hyalinization (fig. 5). Several Aschoff bodies were present at the base of the valve.

No changes other than atelectasis and congestion were observed in the lungs, and the liver, under the microscope, showed typical chronic passive congestion.

#### ANATOMIC DIAGNOSIS

1. Rheumatic pancarditis.
  - a. Fibrinous pericarditis.
  - b. Marked right ventricular, moderate left ventricular hypertrophy.
  - c. Endocarditis, mitral marked, aortic slight.
2. Atelectasis, both lower pulmonary lobes.
3. Chronic passive congestion of lungs and liver.
4. Bilateral pleural effusion.

#### DISCUSSION

To throw further light upon the question of rheumatic fever in the Territory of Hawaii, 792 consecutive Queen's Hospital autopsies were analyzed, covering the 3½ year period from September 1937 to date. There were 19 cases of endocarditis, of which 12 were classified as rheu-

matic, an incidence of 1.5 percent. This incidence is considerably lower than that found by Clawson (1) at the University of Minnesota in a recent exhaustive analysis of 27,957 autopsies. This author observed 796 cases of rheumatic heart disease in this group, an incidence of 3 percent.

Of the 12 cases in the Queen's Hospital series, 4 were elderly Caucasians who presumably had lived on the Mainland and had contracted the disease there, and in whom the scarred mitral and aortic valves were incidental findings. The remaining 8 were all young and all natives of the Territory, and most of them presented the classical clinical picture of severe rheumatic carditis and the typical gross findings at autopsy. In none of these cases, except the one presented, were Aschoff bodies found in the myocardium. However, it should be clearly pointed out that Aschoff bodies are found in only 60 percent of all cases of acute rheumatic carditis, so that failure to find them does not rule out this diagnosis. This point was emphasized by Clawson, who was able to demonstrate Aschoff bodies in 67 percent of the acute cases and in only 5 to 10 percent of the older cases of mitral and aortic scarring. A diffuse type of productive inflammation was observed by this author in 10 percent of the cases while the remainder showed nothing characteristic.

Fig. 4. Early Aschoff body, spherical in shape, showing very well the broken down collagen in the center and the endothelioid cells and lymphocytes at the periphery. High magnification.

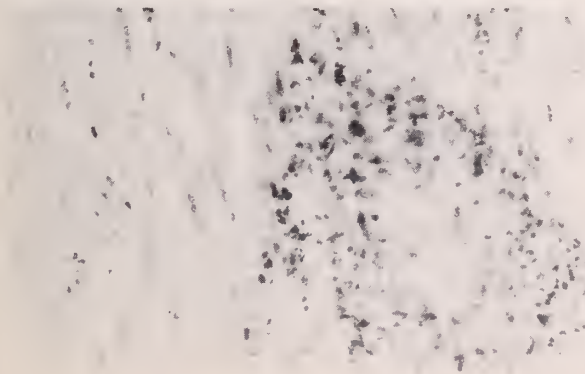
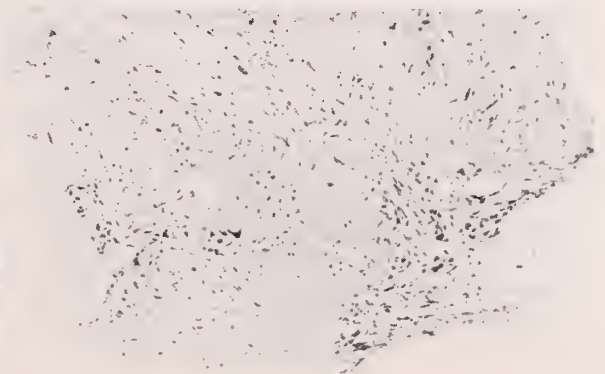


Fig. 5. Free margin of mitral valve showing tremendous fibroblastic proliferation.





Age Groups	Population U. S. Census Apr. 1, 1930	Total Deaths	Deaths "Rheumatism" Rheumatic Endocarditis	Per Cent "Rheumatic" to Total Deaths
Under 5 yrs.	48,180	8,627	8	.09%
5 to 9 "	47,119	853	10	1.17
10 to 14 "	38,042	607	7	1.15
15 to 19 "	33,490	860	5	.58
20 to 24 "	42,767	1,332	2	.15
25 to 29 "	36,671	1,404	1	.07
30 to 34 "	27,474	1,422	3	.21
35 to 44 "	41,007	3,145	2	.06
45 to 54 "	29,077	4,013	1	.025
55 to 64 "	16,769	5,045	5	.10
65 to 74 "	5,871	4,263	0	-----
75 & over	1,767	2,962	0	-----
Unknown	103	1	-	-----
Totals	368,336	34,533	44	.13%

Disregarding the four imported cases of old mitral and aortic scarring, then, the incidence of rheumatic heart disease acquired in the Territory in our Queen's Hospital autopsy series is approximately one percent, just one third that found by Clawson in his series.

This low incidence is even more strikingly illustrated by the Queen's Hospital admissions.

#### QUEEN'S HOSPITAL ADMISSIONS

Year	Number	Rheumatic Fever
1936	8,097	12 - 1 DEATH
1937	8,718	9 - 1 "
1938	9,409	7 - 1 "
1939	10,301	24 - 4 "
1940	11,808	30 - 4 "
	48,333	82 - 0.2%

#### MAINLAND SERIES - 3 to 7% Hospital Admissions

Of the deaths recorded in the Board of Health during the ten-year period 1931 to 1940, only 44 out of a total 34,533 were attributed to acute rheumatic fever and rheumatic endocarditis; thus only 0.13 per cent of the total were classified as "rheumatic fever" deaths.

The tabulation of these deaths by age groups is presented in the accompanying table.

The latest available population figures by age groups are those of the 1930 census, no estimation of death rate is therefore possible. The largest percentage of "rheumatic fever" deaths occurred in the age groups 5-9, 10-14 and 15-19 years. This is in accord with recorded findings elsewhere.

The ratio of rheumatic fever and rheumatic endocarditis deaths to the total cardiac deaths is much smaller than we had anticipated, and smaller than that found in most parts of the United States. For the years 1939 and 1940 the total cardiac deaths were 543 and 493 respectively. Each year there were only 3 deaths from "rheumatic endocarditis." Only 0.6 percent or less of cardiac deaths were recorded as of "rheumatic"

origin, according to the statistics of the Board of Health.

#### SUMMARY AND CONCLUSIONS

A case of fatal rheumatic carditis, with autopsy is presented. Typical Aschoff bodies were found in the myocardium.

The incidence of rheumatic fever in the Territory of Hawaii, as determined by a study of vital statistics, hospital admissions and hospital autopsies, is extremely low. Cases of rheumatic fever made up only 0.2 percent of all admissions to the Queen's Hospital during a five year period, contrasted with an incidence of 3 to 7 percent of all admissions to large general hospitals on the Mainland. Only 0.13 percent of the total deaths in the Territory during a 10 year period were attributed to rheumatic fever. Rheumatic heart disease acquired in the Territory constituted approximately one percent of 792 consecutive Queen's Hospital autopsies, as compared with 3 percent found by Clawson in an analysis of 27,957 autopsies at the University of Minnesota.

That the disease may occur in Hawaii in its classical acute form with severe and fatal cardiac involvement is illustrated by the present and by the other cases in the Queen's Hospital autopsy series.

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881 Young Street

#### DISCUSSION BY DR. HENRY GOTSHALK

For a long time the general opinion prevailed that rheumatic fever was not present here. In 1936, at St. Francis Hospital, I had a school girl 16 years old who died from a subacute bacterial endocarditis due to streptococcus viridans. She

had had rheumatic fever in 1933 and later developed clinical evidence of mitral heart disease. After autopsy Dr. Hosoi was able to show Aschoff bodies in the heart muscle.

Many times unsuccessfully I have attempted to demonstrate early electrocardiographic changes in rheumatic fever. The most probable reason for failure is that rheumatic fever here is usually very mild. It is only on rare occasions that we see such a case as described by Drs. Doolittle and Tilden.

Recently Dr. E. F. Bland reviewed 615 cases

of rheumatic fever at the House of the Good Samaritan, Boston, studied from 1934 to 1939. The age range was from 5 to 15 years. All received protracted bed care with careful medical supervision, yet 375 or 63 percent developed obvious rheumatic heart disease.

In Hawaii the few cases we see usually subside within 2 or 3 weeks and consequently receive very little medical follow-up. Our low incidence of mitral heart disease following rheumatic fever must therefore be due to climatic conditions rather than to medical treatment.

## Poliomyelitis in the Territory of Hawaii

### A STATISTICAL ANALYSIS

RICHARD K. C. LEE, M.D., DR. P. H.

Honolulu

#### (ABSTRACT)

Statistical data are presented in this paper to show the distribution of poliomyelitis in the Territory of Hawaii since 1922, with special reference to an outbreak of this disease during the fiscal year 1940. Since poliomyelitis is described as a disease of the temperate zones, this information of the disease in a semi-tropical climate including a description of its racial distribution may add further data to the epidemiology of poliomyelitis.

Prior to 1922 poliomyelitis was not reported to the Board of Health. Since then, 400 cases have been reported. Of this number, 76 were cases diagnosed long after the acute stage of the disease and referred to crippled children clinics because of residual paralysis.

Except for the islands of Lanai and Niihau, poliomyelitis was reported from all islands during the period from 1930 to 1940. During the epidemic year of 1940 the island of Hawaii reported the highest rates, Oahu second, and Kauai the lowest. Poliomyelitis is described as a warm

weather disease which spares warm countries, but it is a definite public health problem in the Territory of Hawaii even with our warm climate. Instead of showing the seasonal periodicity of endemic regions, the disease in the islands shows a more even distribution throughout the year. Epidemics are possible here just as in the temperate zones.

Racial distribution and the particularly high incidence among Caucasian and Hawaiian groups is emphasized in this report. The writer attempts to explain this on a basis of environmental opportunities and exposure to sources of infection and not to a lack of racial immunity. The Caucasian group especially has been exposed to the increasing migration from the mainland to the Territory during recent years. Lowest rates are experienced among the Filipino, Chinese and Japanese groups.

The youngest child diagnosed with the disease was 3 months and the oldest patient was 69 years of age. During the period from 1930

to 1940, out of 334 cases, 95% were under 21 years of age. By sex distribution, 62% of these cases were males and 38% females.

In conclusion, poliomyelitis will continue to be a public health problem in the Territory,

partly, at least, because of the increasing influx of people from the mainland.

Richard K. C. Lee, M.D., Dr. P. H.  
Honolulu

## The Sulfonamides in Gonorrhea

### A CLINICAL EVALUATION

LIEUT. COMDR. FRENCH R. MOORE (M.C.) U. S. NAVY

#### (ABSTRACT)

The treatment of gonorrhea by the use of sulfanilamide and its derivatives, sulfapyridine and sulfathiazole, is so gratifying that it almost becomes a pleasure to treat these cases. It is indeed a far cry from the days before 1937 when our venereal wards were filled with old recurring gonorrheal cases.

Our experience with 80 cases of gonorrheal infections has shown that sulfathiazole is a much more satisfactory drug to use than either sulfanilamide or sulfapyridine. The percentage of cures has been higher and the average time on sick list was nearly 45 per cent less than with

sulfapyridine and 60 per cent less than with sulfanilamide.

There was only one reaction following the use of sulfathiazole as compared with 15 in the sulfapyridine and 17 in the sulfanilamide groups.

Blood counts on patients receiving sulfathiazole revealed no changes, while with sulfapyridine and sulfanilamide, frequent blood examinations are necessary.

No relation was found between the blood concentration and the response made by the patient with either sulfapyridine or sulfathiazole.

## The Sulfonamides

*A Panel Discussion participated in by Dr. Nils P. Larsen, Chairman, Drs. O. Lee Schattenburg, S. E. Doolittle, Edmund Ing, A. Ng-Kamsat, and Marquis E. Stevens.*

The latest member of the sulfonamide series, sulfaguanidine, prepared by the Lederle Laboratories, was commented on by Dr. Doolittle. It differs from the others in that it is very poorly absorbed from the intestinal tract and has relatively low toxicity. It is advocated particularly in the treatment of bacillary dysentery. Dr. Doolittle tried it in one case with apparently good result. This was a proven case, the organism apparently belonging to the Shiga group. Patient had painful bloody diarrhea for four days, symptoms controlled within forty-eight hours of institution of treatment and remained so there-

after. No toxic symptoms were observed. The drug was felt directly beneficial in shortening the course of the disease.

Dr. Doolittle also reported the use of sulfaguanidine for about three days in a case of typhoid fever with apparently no effect whatsoever. There being no previous report in the literature, this incident was thought worth mentioning.

Dr. Schattenburg reported the case of a girl with a deep abscess in the left thigh. Drainage revealed a culture of staphylococcus, infection persisted after drainage. Adequate doses of sulfathiazole were administered without apparent effect. Check of blood levels revealed inability to concentrate the sulfathiazole over 0.75. The



reason for non-absorption and concentration remains unknown.

According to the discussants it is very difficult to get a high blood level of sulfathiazole, and in their experience blood levels of 3 to 6, as recommended in the literature, do not seem to be essential. Dr. Doolittle claims that although the literature suggests that high blood sulfathiazole levels in pneumonia are desirable, in his experience it has been possible to cure cases of pneumonia in which the blood level has never gone above 1 or  $1\frac{1}{2}$  mg. per 100 cc.

Dr. Fennel believes the "sulfa" compounds to be bacteriostatic, not bactericidal, giving that as the reason for the failure of treatment in the case cited by Dr. Schattenburg. He feels that pneumonia is still considered best handled by anti-bodies plus the "sulfa" compounds. Dr. Saunders agrees that the compounds are bacteriostatic, and in his experience, finds that patients under treatment for gonorrhea, receiving sulfapyridine and sulfathiazole in adequate doses, after weeks, and several as long as a month, are still having trouble.

Dr. Ing believes gonorrhea is very well controlled with very small doses of sulfathiazole (2-4 Gm. a day) and claims unbelievable cures with stiff doses of 3-4 Gm. at the outset, later reduced to 1 Gm. every 4 hours. He believes sulfathiazole is the drug of choice as far as gonorrhea is concerned. He considers it wise to keep patient on it for about two weeks. In response to objections that these may be false cures, Dr. Ing reports that at Palama Settlement they see patients three or four times and have them return in 2 or 3 weeks for check-up.

Dr. Stevens recounted his experience with the local application of the sulfonamides in contused wounds and compound fractures of the digits which have healed without suppuration with sulfanilamide and sulfathiazole. Wounds are treated with the best possible surgical toilet and sulfanilamide and sulfathiazole powder are used together to attack any combination of organisms. It is sprinkled freely into the wound and the wound closed up tightly.

Burns, especially on the back of the hand, also seem to benefit by the local use of sulfanilamide and sulfathiazole. By debriding and cleansing the wound, then applying the powder, a fairly good coagulum is obtained which does not have to be removed; drainage goes right through the coagulum and into the dressing. No

toxic effects have been observed from such local application of these drugs.

The drugs have also been used locally in other parts of the body, as in cases of ruptured gastric ulcer where 4 Gm. of sulfathiazole powder was applied locally in the peritoneal cavity. No peritonitis set in, nor was there any sign of reaction or systemic effect as when the drug is taken orally.

For practical purposes, Dr. Stevens reported, the powder used is prepared by grinding the tablets.

Dr. Ng-Kamsat discussed the use of the sulfonamides in meningitis. From almost 100% fatality, the mortality has been reduced to 54-55% with the use of sulfapyridine alone or in combination with serum. The dosage recommended is 8-10 Gm. in the first 24 hours, in 6 divided doses 4 hours apart gradually diminishing to 2-3 Gm. in 24 hours. If the response in 10 days is not satisfactory, other means should be used.

Dr. Crawford reported a case seen on the Island of Hawaii, of brain abscess treated with sulfapyridine. The only localizing sign found was a little ataxia in the right arm. A mastoid operation was done and a tract found leading back of the petrous portion of the temporal bone into the cerebellum. The patient was returned to his room and continued on sulfapyridine. Later the right side of the skull was entered and the cerebellum explored. The abscess was never found; the patient recovered from the sulfapyridine therapy alone. He was back to normal weight in about a month.

A case of meningitis with mastoiditis was treated with sulfathiazole. The cell count the day before death was down to 1,000 from an original count of 6,000.

Dr. Fennel emphasized the importance of making a diagnosis before giving the "sulfa" compounds and made a plea against their indiscriminate use just on speculation.

Use of sulfathiazole in a case of chronic osteomyelitis of the femur was discussed by Dr. Withington. Whereas for nearly two years he had been breaking down and draining, for the last four months on sulfathiazole, and recently not very large doses, he has healed up, with very marked improvement of the femur shown by x-ray. On the other hand, use of sulfathiazole on some childhood cases of osteomye-

litis has been without apparent result. Dr. Craig strongly endorsed the pessimism of the latter statement.

Dr. Saunders hopes to have the first cure of a case of bacterial endocarditis in Hawaii, from a combination heat-box treatment and sulfathiazole.

All experiments with the sulfonamides in tuberculosis have proven useless.

In response to the question whether the sulfonamides are worthwhile in prophylactic doses to avoid secondary infection, Dr. Fennel again pointed out that unsupported by some antibody they are almost useless.

## Photography of the Eye

(Colored lantern slide demonstration)

FORREST J. PINKERTON, M. D.

Honolulu

While taking some special work under Dr. Robert Von der Heidt of Chicago in 1925 I first became interested in eye photography. He was then doing external eye pictures in color by a very laborious process.

The first good pictures of the ocular fundus by the simplified technic that I saw were shown at the 1931 A. M. A. scientific exhibit in New Orleans,

The new model of Zeiss Nordensen camera is not as satisfactory as the arc model which I have because the light from the 12 volt nitra lamp bulb gives a U-shaped light when in focus and can only produce its best results through the widest dilation of the pupil. It is frequently impossible to dilate a pupil to a greater diameter than 6 mm., which is satisfactory for the arc type of light but gives a poor picture with the new model. The Zeiss people were working on changes in this light source before the war. The carbons of the arc lamp must be constantly adjusted, and the milliammeter should register 5-10 ma. with 110 volts being used.

I now use the Eastman film, Kodachrome (for daylight) with a small two dollar basket camera stripped of its lens and adapted by a mechanic for use on the Nordensen. This eliminates the final adjustment of 1 cm. formerly required because the Nordensen was built to use emulsions on glass.

The best pictures for fundus blood vessel detail are, of course, the black and white; for these I use Panatomic X, which is developed at once in my own laboratory.

Color pictures are of increasing value, but to date they cannot take the place of black and

white photographs in showing details of the structure of the blood vessels. After all, it is in the blood vessel studies that we most frequently see the earliest pathology. With greater refinement constantly taking place, however, the immediate future of fundus photography lies in the color pictures.

Infra red photography in theory should show deeper fundus structures, but in practice seems to possess no advantage over ordinary color if the colors are true.

Stereoscopic fundus pictures have been done with great success in a limited number of selected cases. They cannot be done unless the pupil is at least 7-8 mm. in diameter because of the angulation necessary and the best illumination in each angle.

In taking full face views, I use the Leica type camera, 35 mm. Kodachrome type A, with artificial light. Pictures of external diseases are done this way because the true color value of the cornea and anterior segment structures is obtained.

It has been proven conclusively that the amount of light used to make the picture will not damage the eye, either sick or well. It is turned on only for the time of exposure,  $\frac{1}{2}$  to  $\frac{1}{10}$  of a second, depending upon the size of pupil, clarity of media, and whether the eye is blond or black.

Simon wrote at length in 1937 on the "Retinal Method of Identification by Means of Photography," presenting a new system of classifying retinal patterns. He uses a transparent protractor, laid over the finished photograph, and takes readings of veins in certain definite locations.

These patterns never change and this method of identification is being used in addition to finger printing.

Some inaccuracies of color value take place in showing the picture when the carbon arc automatic adjustment does not keep up with the speed of the carbon combustion. A critical analysis of the colors can only be made when the transparency of the cornea and lens, size of pupil, clarity of vitreous, and color or pigment

distribution of the eye is taken into consideration. The majority of these pictures are satisfactory for my purpose because I know the conditions under which they were taken and also the pigment distribution in the body.

One or two pictures on each of the various diseases of the eye lid, cornea, and conjunctiva will be shown, progressing backward and including a typical sample of what can be done in portraying many disease conditions.

## Ectopic Pregnancy in Hawaii

O. LEE SCHATTENBURG, M. D.

Honolulu

### (ABSTRACT)

This paper is an attempt to view the local aspects of this problem, to introduce some of the newer diagnostic adjuncts, to re-emphasize certain methods of treatment and to introduce certain case histories to clarify some of these points.

Seven case records of recent deaths from ruptured ectopic pregnancy in Hawaii are reviewed with comments on underlying causes of failure.

Figures from the largest general hospital in Hawaii tend to show that the incidence of ectopic pregnancy in the Territory is higher than the figure usually given, although we have no explanation of this increased incidence.

The more modern diagnostic and therapeutic methods are reviewed in the hopes that future death rates from this condition can be lowered.

## Kahili Flower (*Grevillea Banksii*) Dermatitis

### A PRELIMINARY REPORT

HARRY L. ARNOLD, JR., M. D.,

Honolulu

The list of plants capable of producing dermatitis venenata is already so long that it seems quite possible that only time is needed for it to include all known plants. The report of the observation of this property in one more plant, therefore, would seem to require some justification other than the fact that the plant has not been previously identified as a common cause of dermatitis.

The following justification is offered:

1. The "kahili flower" (Fig. 1) has proven to be by far the most frequent and severe plant sensitizer over a period of nearly two years of dermatologic practice in Hawaii.

2. Sensitization to the blossoms is very much

more common and more severe than sensitization to the leaves.

The first of these facts is remarkable because the mango (*Mangifera indica*) has enjoyed a firmly established reputation for many years as the foremost cause of plant dermatitis in Hawaii. It is by no means unusual to have a patient with an acute dermatitis say "I guess I've got mango rash"—much as a mainland patient might suggest poison ivy as the basis for a similar eruption. It is also commonplace for physicians to make an offhand diagnosis of "mango dermatitis" in any case of acute vesicular dermatitis, particularly when it appears on the face or hands or arms. The mango is so abundantly distributed throughout the territory that no question need



ever arise as to whether there has been opportunity for contact to occur. Both the leaves and the skin of the fruit and probably the sap as well, are capable of producing dermatitis. The

"kahili flower" has had no such reputation, although Degener<sup>1</sup> in his *Flora Hawaiiensis*, says that a "very few cases" of dermatitis have been observed in handling the "kahili flower", which he lists under the name *Stylurus Banksii*.

The second observation—that patients are apparently invariably far more sensitive to the blossoms of the "kahili flower" than to its leaves—appears to be very nearly unique. It is not common for flowers to produce dermatitis at all. Very little work has been done on the question of the limitation of sensitizing properties to certain portions of plants; when such limitation has been demonstrated, the active principle has usually been found to be present in the leaves and *not* in the flower; this has been shown to be true of both the primrose (*Primula obconica*) and the poison ivy (*Rhus toxicodendron*).<sup>2</sup> I have been unable thus far to find any report of an example of proven sensitization to the blossom of a plant and not to its leaves.

The evidence for the relative predominance of the *kahili* flower over other plants as a cause of dermatitis in my own practice is reasonably clear-cut. Twenty-four cases have been seen in which the appearance of the eruption was characteristic of a dermatitis venenata of plant origin. The appearance of the lesions in the fifteen of these subsequently found to be sensitive to the *kahili* flower was remarkably uniform. In cases seen during the first thirty-six hours or so there was almost invariably vesiculation on the fingers, backs of the hands, or wrists, frequently occurring in narrow linear patches, occasionally occurring singly or in small groups; the vesicles were small (one or two millimeters in diameter, and tense. There was moderate surrounding erythema. In these relatively early cases there was almost invariably patchy erythema about the face, frequently involving the eyelids and the sides of the neck and occasionally the ears. Within an additional twenty-four hours or so vesiculation was usually present in these erythematous areas, and the lesions on the hands and arms were becoming edematous. The eruption usually reached its maximum severity and widest distribution by about the sixth day, and thereafter subsided slowly over a period of a week or more often two, leaving no residuum. Itching was in all cases severe. In three cases a history of sen-



sitivity to mango was obtained, and in one of these a definite history of mango contact; in the remaining twenty-one only six gave a history of contact with *kahili* flowers; one gave a history of wearing a *mokihana* lei; and of the remaining fourteen only two admitted so much as knowing the flowers by sight, and they could recall no opportunity for contact. Six of the fourteen did not react to any of the antigen-extracts; or of the other eight, two cases were sufficiently severe to require about a week of hospitalization; all responded in about the usual manner to the usual treatment for dermatitis venenata. It was felt that thorough centripetal sponging of early lesions and their surrounding skin with sulfuric ether followed by 95 per cent alcohol probably mitigated the severity of the eruption in several cases.

All of these cases were skin-tested, usually at the time of the first visit, with ether solutions of the ether-soluble portions of the dried leaves of the mango, oleander and *kahili* flower and of the dried blossoms of the latter. These antigen-solutions were prepared according to the technic devised by Bedford Shelmire,<sup>3</sup> which consists briefly of drying the material to be extracted, grinding it, covering it with ether for twenty-four hours, decanting and evaporating the ether, and redissolving the sticky residue in roughly ten times its volume of ether. This solution is placed in ordinary homeopathic vials and the tests are made by simply inverting the vial, removing the cork, and applying the moist end

of the cork to the patient's skin, leaving a circular deposit of the solution there, which dries immediately and is left uncovered. The flexor aspect of the forearm was used in all tests.

Ten normal persons were first tested, and none reacted in the slightest degree to any of the antigen solutions; twenty-three cases of various dermatoses, chiefly of contact type, have likewise failed to react to any of them; one physician with a history of mango sensitization inadvertently "tested" himself with the mango

direct tests have been made with this plant material as yet.

The common name of *Grevillea Banksii* in Hawaii comes from the resemblance of its flower-racemes to the ancient ceremonial *kahili*, a long staff topped by a cylindrical cluster of radiating feathers, after the fashion of an enormous test-tube brush with coarse, rather sparse bristles. It was introduced into Hawaii from Australia at least forty years ago, and is now fairly widespread here, though its disinclina-

Case No.	History of contact? Interval?	Tests to antigen-extracts				Tests with <i>G. Banksii</i>	
		Mango leaf	<i>G. Banksii</i> flower	leaf	Oleander leaf	flower	leaf
1	+, 4 days	—	4+	—	—		
2	—	—	3+	+	—		
3	+, ? days	—	4+	—	—		
4	—	—	3+	—	—		
5	?, 4 days	—	3+	—	—		
6	"Mango"	—	4+	+	—		
7	+, ? days	—	4+	—	—		
8	—	—	3+	—	—		
9	—	—	3+	—	—		
10	—	—	3+	—	—	4+	—
11	+, 3 days	—	4+	+	—		
12	—	—	3+	+	—		
13	—	—	4+	—	—	4+	—
14	+, 6 days	—	4+	—	—		
15	+, 3 days	—	4+	—	—		
16	"Mango"	4+	—	—	—		
17	"Mango"	4+	—	—	—		
18	Mokihana	—	—	—	—		
Controls (ten normal)		—	—	—	—	2 only	
(six venenatas)		—	—	—	—	—	—

antigen-extract, with the result that he was disabled for several days with a severe dermatitis venenata. Of the twenty-four cases of plant dermatitis, fifteen reacted strongly to the extract of the *kahili* flowers, and of these four reacted very feebly to the extract of the leaves of this plant; none of them reacted to mango extract in the slightest degree. Two reacted strongly to the mango extract and failed to react to the others. Seven did not react to any of the antigen-extracts. No cases manifested any reaction to the extract of oleander leaves (see Chart 1).

Only three persons with dermatitis have been tested to the leaves and blossoms of the *kahili* flower; these three had all reacted strongly to the extract of the blossom and not at all to the extract of the leaf, and the same response occurred with the plant substance itself.

An ether extract of the blossoms of *Grevillea robusta* has been prepared, and four persons who were strongly reactive to the extract of *G. Banksii* blossoms have been tested with this; none of them manifested any reaction to it. No

tion to grow at elevations below three hundred feet or so have limited its spread somewhat, particularly in Honolulu. It grows as a small orchard tree in the upper end of Manoa valley and as an occasional ornamental tree in the upper part of Nuuanu valley, near Honolulu; notwithstanding this, a professional botanist who has lived in the territory for many years has informed me that he has never yet seen it growing! This observation is certainly the experience of most persons; the cut flower-racemes, which are showy and inexpensive and therefore very frequently used in floral arrangements, are apparently almost invariably the source of contact with the plant. Their use is so widespread that — as with mango — failure to obtain a history of contact with them is of no importance in arriving at the diagnosis. Moreover, it is common to find the flower-racemes alone, without the leaves, in large floral arrangements, though the leaves are occasionally included; and on Hawaii at least, the racemes are occasionally made into *leis* (wreaths to be worn about the neck).

*Grevillea Banksii* is a tall shrub or small tree, attaining a maximum height of 20 feet in Australia, although Hawaiian specimens attaining this height are rare. Its leaves are 4 to 8 inches long, usually deeply pinnatifid, with lanceolate segments. The flower-racemes are terminal and erect, either red or very pale yellow. The flowers composing them are small, perfect, tomentose outside, and apetalous; the recurved calyx splits down one side; the style is long and curved, with its tip recurved and attached to the calyx until the flower is mature, when it is released and springs out nearly straight.

There is one other species in Hawaii, *Grevillea robusta*, commonly known as the silk or silky oak, silver oak, or Australian oak. It is much more widely distributed throughout the islands than *G. Banksii*, and differs from it in several important respects. It is a large tree, said to attain a height of a hundred feet or more, although Hawaiian specimens are in general rather shorter, with trunks a foot or more in diameter. The leaves are twice pinnatifid, the broader segments being once again divided nearly or quite to the midrib, generally on the outer side only. The flowers, smaller and orange yellow in color, are borne in terminal and axillary horizontal racemes, these single or several together. *Grevillea robusta* also grows in California and Florida, as well as in Australia, to which it is native. Its wood has been used for barrel staves and furniture.

A third *Grevillea*, species *Thelemanniana*, is a popular shrub in California; it bears pink flowers with green tips, arranged in racemes rather smaller than those of *G. Banksii*.

## UNITED WELFARE CAMPAIGN

OCT. 13-18

With knowledge that the forthcoming year is to present increased problems in the field of preventive health work and social welfare, United Welfare will make its annual appeal for funds the week of October 13 to 18.

Population increase has brought with it not only an additional burden of health and welfare work, but the responsibility for adjustment of thousands of people to a new environment.

It is widely accepted today that efforts in meeting human needs is a first responsibility of an American community. The United Welfare fund in Honolulu represents a first line of defense. It unites the entire community in the great

## SUMMARY

1. Twenty-four cases of dermatitis venenata have been seen in which the appearance of the lesions suggested a plant as the most likely cause.
2. Fifteen of these cases were shown to be highly sensitive to an ether extract of the blossoms of the "*kahili* flower" (*Grevillea Banksii*); of these only four manifested slight sensitivity to an ether extract of the leaves.
3. Only two cases reacted to an extract of mango leaves; these failed to react to the other antigen-extracts.
4. In the remaining seven cases no reactions were elicited by patch tests, and the cause was not determined, except in one in which the distribution and history established a *mokihana* lei as the cause.

## CONCLUSIONS

1. Dermatitis venenata of plant origin in the office practice of dermatology in Honolulu is far more frequently due to contact with the *kahili* flower (*Grevillea Banksii*), than to contact with mango (*Mangifera indica*) or any other single plant.
2. It is suggested that the blossoms of this plant, and not the leaves, are responsible for the sensitization.

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common cause of preventing social breakdown which, neglected, leads to serious undermining of our way of life. Without a strong and happy people behind the lines, national defense may collapse from within. Good health, sufficient food and clothing, decent homes to live in, personal inspiration, spiritual guidance and opportunities for youth to work and learn—these are the bulwarks of an impenetrable line of home defense.

In welfare work, as in medicine, the emphasis today is upon prevention. Actually, the United Welfare campaign is not a "charity drive"; it is sound community insurance. The health and welfare agencies of United Welfare seek to substitute independence for dependence in health and family problems, child care and youth guidance.



# Specific Therapy of Lobar Pneumonia

## (SUMMARY)

M. A. BLANKENTHORN, M. D.

Cincinnati, Ohio

Dr. Blankenthorn in his discussion described the relative merits of various "sulfa" compounds in relation to the treatment of lobar pneumonia.

Sulfathiazole is more easily given than sulfapyridine and it is not conjugated as much. In the process of being absorbed and eliminated it is not split up like sulfapyridine in a way to make it ineffectual. Sulfapyridine blood levels have to be watched to keep out of trouble, but sulfathiazole blood levels are not so necessary.

Sulfadiazine is being introduced and is a rival of sulfathiazole. It is easily given but is not quite as prompt in its effect as sulfathiazole. It is considered a very satisfactory drug but it has most of the toxic side-effects of sulfathiazole.

**Dose:** For critically ill patients and for those who cannot swallow, we use 5 Gm. of sulfathiazole intravenously immediately upon receiving the patient at the hospital. That has not been a harmful procedure. It used to be thought dangerous to move the patient to a hospital but now, when it is believed that no pneumonia patient should die, hospital services are receiving a great many patients in the late stages of pneumonia. To such we give the drug intravenously in 5 Gm. doses. We repeat every eight hours until the patient can take it by mouth or until he feels better. Those not so ill we give an initial dose of 2-3 Gm. and 1 Gm. every 4 hours by mouth until the patient has no fever. The average dose has been about 35 Gm., 6 Gm. a day, over 3 to 7 days. We continue until we have 2 days without fever.

**Serum:** Serum is a true specific for pneumococcus infection. We use a great deal of it and advocate its use. It promotes bactericidal activity and detoxifies, and does it quicker. Serum has now been so purified and concentrated that we may give it freely without fear of shock or chill. We practically never get into trouble with it. It has only one drawback in that it produces serum sickness. It produces fever sometimes but it no longer produces shock. Rabbit serum especially is safe to give. We use serum now in our sickest patients but to use serum every patient must be "typed".

We use serum if at the end of 24 hours there is no response to the sulfonamides, and also if we learn that the blood culture is positive. We do this even if only 12 or 18 hours have elapsed after starting drug treatment. Serum is used in the aged because we are not a bit afraid of the serum and believe it is the most powerful remedy, and we use it in pregnant women or women who have pneumonia immediately post-partum.

**Dose:** Serum must be given intravenously. The dose can be repeated in 12 hours if the first dose does not produce a drop in temperature. We have not adopted a standard dose but rarely give less than 100,000 units at a time.

**Precautionary Measures:** Our precautionary measures are of an active type:

(1) A white blood count is made on admission. We have not been stopped from giving serum or the drug if the white blood count is as low as 4,000. We have not had a death due to depression of the bone marrow in over 1,000 patients treated with serum nor have we had a death from this cause from the use of drugs.

The vogue for high blood levels of sulfonamides in pneumonia is fading out. It is not necessary to have high blood levels, but knowing the blood levels of the drugs is quite helpful. They are very necessary with sulfapyridine because you cannot tell when you have given enough to be effective. With sulfathiazole the blood levels are not so necessary, and they are never so high as we maintain with sulfapyridine of the same dosage. Adequate medication is necessary, but excessive medication will not deal with desperate cases.

(2) Urine examinations are more necessary than blood levels.

(3) The blood urea is a useful device. We do this on admission. A good many patients with pneumococcus disease have kidney damage. It is of short duration, but it interferes with the proper elimination of the

drug. You cannot tell about that sort of damage by examining the urine.

- (4) The red blood count is important but not necessarily essential. A careful doctor can see that a dangerous hemolytic crisis has happened by observing the patient.

Often I am asked what I would do with a patient down in the Kentucky mountains where there is no laboratory. Would it be better to take a chance on the untreated pneumonia? My answer is always, give these drugs if the patient has lobar pneumonia, because none of them are as dangerous as lobar pneumonia.

**Suppurating Complications:** The next most important task the doctor faces in pneumonia is discovering suppurating complications. The drugs or serum may produce fever very much like the fever of empyema or relapse. The drugs do not always abruptly stop the spread of consolidation. It is not unusual to have a spread go on after the drugs are given. It takes continual careful bedside examination to find suppurating complications when using these new remedies. Neither serum nor drugs deal satisfactorily with empyema of the pleura or of the pericardium nor with meningitis. A helpful sign to the bedside doctor other than his examination of the patient is continued pain at the site of pleurisy. When fluid continues to increase in volume it often causes pain, especially pain that persists where no friction rub is present. Pain may be due to a spreading process or ac-

cumulation of fluid. Recurrence of the fever is a hint that suppuration has occurred. Failure of the white blood count to fall is a hint, and, of course, x-ray is the most important in deciding when empyema has occurred. As all pleural effusions usually become suppurating fluids, fluids when they occur should be tapped for diagnosis and tapped dry if clear.

I think there is only one contraindication to the use of the sulfonamides and that is the knowledge that with the previous administration of the drug the patient had a bad and dangerous reaction. The definite contraindication for serum is a history of an allergic state. We used to regard age as a contraindication, but we no longer hold that opinion.

**Lung Puncture:** I have been asked about lung puncture many times. For a good many years in connection with the diagnosis of early empyema, I advocated frequent taps, not waiting for x-ray evidence. I have never produced empyema by a dry tap or by this device of lung puncture.

I have needled into a streptococcus abscess, or lung gangrene and produced abscess of the intercostal muscles but I have not ever caused pneumococcus empyema by a dry tap or by lung suction. I do not believe it is as safe a procedure in children as in adults but I cannot say just why it is not. Perhaps in a small chest the large vessels are more easily entered by a needle.

## Lobectomy for Bronchiectasis

ROGERS LEE HILL, M.D.

Honolulu

Laennec<sup>1</sup> in 1819 was the first person to recognize the diseased state of the bronchi now known as bronchiectasis. His attention had been called to dilatations of the bronchi by Cayol<sup>1</sup> some eleven years previously. The clinical diagnosis was not positively established, however, until after the introduction of bronchography with iodized oil by Sicard and Forestier<sup>2</sup> in 1922. Much confusion in the diagnosis of this disease existed before the introduction of this important diagnostic aid. It has now become well established as a clinical entity and has been divided into many anatomical and pathological subdivisions. At the present time, however, some difficulty

may occasionally be encountered in practice in differentiation between abscesses, bronchiectasis and cysts, although a distinction may be generally agreed upon in theory.

The history of therapy in bronchiectasis is marked by alternating periods of conservatism and radicalism. Statistics before 1922 were misleading because many cures were reported which were in all probability spontaneous cures of lung abscesses, chronic pneumonitis or even fungus diseases. Early recognition of the irreparable damage resulting from this disease and the inadequacy of conservative measures led to repeated and courageous attempts at lung resection. These



radical attempts at lung resection were temporarily abandoned because of the high mortality rate and failure to obtain complete symptomatic relief in a high percentage of cases. This led to a search for more conservative surgical measures, such as phrenicectomy, pneumotomy, oleothorax, thoracoplasty, and cautery pneumonectomy. The failures resulting from these methods aroused new interest in anesthesia, diagnostic methods, surgical physiology of the chest and operative technic. More uniformly good results from lung resection have been obtained as a result of these studies.

Gluck<sup>3</sup> evidently considered extirpation of the lung for suppurative conditions as early as 1881, as he performed lobectomies upon animals. Heidenhain<sup>4</sup> was credited with the first successful lobectomy in man in 1901. Garre<sup>5</sup> in 1912 could find only some half dozen lobectomies recorded. The procedure was discarded because of the high mortality rate until after World War I.

Graham<sup>6</sup> revived interest in thoracic surgery in 1918 with his epochal studies on surgical physiology of the chest while working with the empyema commission. With this revival of interest in thoracic surgery, lobectomy was again considered as a therapeutic measure for bronchiectasis. The immediate high mortality rate discouraged advocates of this procedure and as late as 1924 Tuffier<sup>7</sup> said that he had never completely cured a case of bronchiectasis. The pessimistic outlook at this time in the surgical treatment of bronchiectasis was responsible for the following statement by Samuel Robinson<sup>8</sup> in the presidential address before the 1922 meeting of the American Association for Thoracic Surgery: "It has always been my belief that the greatest triumph in thoracic surgery will be the surgical eradication of this deplorable disease (bronchiectasis)".

The introduction of bronchography with iodized oil during this period aided in mapping the extent and distribution of the disease. The discovery of this important diagnostic aid stimulated the repeated attempts at lung resection despite high mortality rate. Lilienthal<sup>9</sup>, a pioneer in lobectomy, reported 10 deaths in 17 lobectomies in 1925. Brunn<sup>10</sup>, in 1929, reported six cases with one death, operated upon by a one-stage method modeled after that Lilienthal and Garre. These favorable reports, followed shortly after by the introduction of the hilum tourniquet by Shennstone<sup>11</sup>, marked a turning point in the development of the operation on this continent.

The control of respiratory disturbances during operation by the administration of anesthetic gas under positive pressure and the control of hemorrhage from the hilar stump by the tourniquet left the remaining hazard, overwhelming infection of the pleurae and mediastinum, still to be solved. Alexander<sup>7</sup> developed a protection against this hazard in creating a protective inflammatory barrier against subsequent infection by causing the undiseased lobe of the lung to become adherent and then removing the diseased lobe at a later date. By this two-stage method he reduced the mortality rate to well below 20 per cent.

In 1932, Graham, Singer, and Ballou<sup>1</sup> studied 212 cases of bronchiectasis treated by lobectomy. They found a mortality rate of approximately 50 per cent, with failure to attain complete symptomatic relief in 50 per cent of the survivors. Alexander<sup>7</sup> in 1933, collected data revealing a mortality rate of 53.4 per cent in 127 cases of lobectomy by general surgeons as compared with a mortality rate of 21.5 per cent in 115 cases of lobectomy by surgeons more familiar with the technical problems and difficulties involved in thoracic surgery. Recent reports in the literature reveal a marked reduction in the mortality rate. Churchill<sup>12</sup>, Graham<sup>13</sup>, O'Brien<sup>14</sup> and Lindskog<sup>15</sup> have reported series of cases with mortality rates of approximately 5 per cent. Edwards<sup>16</sup>, Sauerbruch<sup>17</sup> and Holst<sup>18</sup>, in a fairly large series of cases, had a mortality rate well below 12 per cent. It is therefore safe to conclude that a mortality rate of less than 10 per cent may be anticipated in uncomplicated cases of bronchiectasis with symptomatic relief in the majority of these cases.

Failure to obtain complete symptomatic relief has led to a more complete and detailed study of the various anatomical and pathological aspects of the disease. The general acceptance of the lingula segment of the left upper lobe of the lung as the homologue of the right middle lobe has modified some authors' conception of the anatomical distribution of bronchiectasis. Sauerbruch's original studies upon autopsy specimens in which he described this anatomical distribution of the disease has never received the attention it deserved. The important point under consideration at the present time is whether bronchiectasis must necessarily involve the entire lobe of a lung. The lobe has always been considered the surgical unit of the lung because of certain well defined external fissures. The convenience of these fissures, rather than the underlying pathological distribution of the disease, has been responsible

for defining the areas for pulmonary resection. This attitude may have to be altered in the light of more recent findings concerning the anatomical distribution of the disease. The well established fact that the lingula of the upper lobe of the left lung may be involved independently has been responsible for the theory that the bronchopulmonary segment may eventually replace the lobe as the surgical unit of the lung. Churchill<sup>19</sup> in reporting 86 cases of bronchiectasis subjected to surgery states that the disease was limited to the confines of a single lobe in only 20 per cent of the cases. He further states, that by improved technical details in bronchography, the lingula has been demonstrated to be involved sufficiently often with the left lower lobe to demand resection in 80 per cent of cases. In 47 cases of lower-lobe bronchiectasis Myers and Blades<sup>20</sup> discovered 57 per cent to have involvement of the lingula of the left upper lobe. O'Brien<sup>14</sup> made a similar observation on 40 per cent of 11 cases studied. Bronchiectasis may involve the middle lobe without associated involvement of the lower lobe as evidenced by case reports of Whiteside<sup>21</sup>, Overholt<sup>22</sup> and Churchill.<sup>19</sup> Churchill<sup>19</sup> advocates the resection of diseased bronchopulmonary segments rather than continuing with removal of entire lobes as unit structures.

In order to expect complete symptomatic relief following operation the extent of the disease must be accurately determined. This may be done by careful bronchography with iodized oil. X-rays made in the oblique as well as the anterior position will delineate the lingula and the right middle lobe accurately. Failure to recognize the extent of the disease will be reduced to a minimum.

Eloesser<sup>23</sup> first reported removal of both lower lobes in bilateral bronchiectasis in 1933. Overholt<sup>22</sup> removed both lower lobes and the middle lobe in 1937. Recently Graham<sup>24</sup> has reported the most extensive removal of lung tissue to date, namely, both lower lobes, the right middle lobe and the lingula of the left upper lobe. Total pneumonectomy for unilateral bronchiectasis has been repeatedly demonstrated to be a feasible procedure.

The following case report reveals the inadequacy of the more conservative surgical measures used in the treatment of bronchiectasis.

CASE 1. The patient, a Caucasian-Portuguese male, 8½ years of age, was first seen in March 1936. The chief complaint upon admission to Children's Hospital was cough with production of foul sputum. The onset began 5 years pre-

viously at which time he bit a thermometer in two and swallowed the mercury-tipped end. There was some coughing, dyspnea and cyanosis at the time followed by what was thought to be a mild pneumonia. For a period of one year he remained symptom free. He then began to have attacks of fever, cough and expectoration of large amounts of foul smelling greenish sputum. These symptoms gradually increased in severity and for five months prior to admission he had been bedridden with continuous fever. He expectorated two cups of sputum a day, lost weight and became very pale. Examination upon admission to the hospital revealed a frail, pale, anemic boy who was constantly coughing and expectorating large amounts of very foul sputum. The fingers were markedly clubbed and the right lower lung revealed a foreign body with multiple chronic abscesses.

A two-stage operation was performed in March 1936 with removal of the thermometer bulb and a cautery pneumonectomy of a portion of the lower lobe. Following recovery his cough and expectoration diminished markedly and he improved generally. He now has a bronchial fistula with X-ray evidence of bronchiectasis following lipiodol instillation. His relatives have steadfastly refused further operative procedures.

Edwards in a recent article has summarized his indications for lobectomy as follows: "Patients between the ages of 4 and 40 (and exceptionally older) with bronchiectasis which is reasonably localized and infected and in whom there are no serious general contraindications, should be considered as candidates for radical excision of the portion of the lung affected". This viewpoint is generally accepted at the present time. Since children tolerate intrathoracic operations particularly well it is advisable to subject them to an early operation before irreparable damage is done.

An abstract of a case of bronchiectasis subjected to lobectomy with satisfactory result follows:

CASE 2. A Samoan female 25 years old was first admitted to the City and County surgical service of Queen's Hospital on June 10, 1940. Chief complaint was persistent cough with large amounts of purulent sputum. Patient stated she had an attack of pneumonia at 3 years of age. This was followed by a chronic cough with intermittent production of moderate amounts of sputum. She was sent to Leahi Home in 1934 where the condition was diagnosed as nontuberculous bronchiectasis. For 2 years prior to admission there was a definite increase in the



amount of sputum. She stated that there was from 1 to 2 cups per day and that it had a very foul odor which was offensive to family and friends.

Examination disclosed a tall thin female obviously weak and having frequent paroxysms of coughing. The fingers were moderately clubbed. Bronchograms revealed dilatation of the terminal bronchi of the lower lobe of the left lung. A diagnosis of bronchiectasis of the left lower lobe was made and excision of the diseased tissue was advised.

Operation was performed on June 28, 1940 with the assistance of Dr. James Judd. With intratracheal cyclopropane anesthesia an incision was made on the left side beginning at the level of the fifth rib close to its vertebral attachment and extending anteriorly over the level of the sixth, seventh and eighth ribs to the anterior axillary line. The sixth, seventh and eighth ribs were divided close to their corresponding vertebrae and the pleura was entered in the seventh interspace. A partially atelectatic left lower lobe was found. A good many troublesome adhesions were found between the lower lobe and the diaphragm. The phrenic nerve was crushed as it coursed over the pericardium. The inferior pulmonary ligament was divided and mobilization of the lobe was accomplished by cutting the adhesions between clamps. A transfixion ligature of heavy catgut satisfactorily controlled bleeding until individual ligation of the hilar structures could be accomplished. Several reinforcing sutures were placed through the open surface of the amputated hilus. The chest was closed by pericostal sutures of catgut after a catheter had been inserted through a stab wound in the ninth interspace.

Following the operation pneumonia developed which responded to sulfathiazole therapy. Evidence of empyema was detected on the sixth day and this was followed by a bronchial fistula. The cough diminished gradually, production of sputum decreased markedly and the fistula slowly healed. Eight months after operation she had no cough and no sputum; she felt much stronger, and had gained 20 pounds in weight. An X-ray of the chest after instillation of lipiodol revealed the space once filled by the lower lobe to be filled by expansion of the upper lobe and a rise of the paralyzed hemidiaphragm.

There is no unanimity of opinion as to the selection of the proper operative procedure in excising diseased lung tissue in bronchiectasis. The single-stage procedure may be used in selected patients, provided particular attention is de-

voted to careful hilar dissection with individual ligation of the blood vessels and bronchi. In other patients the multiple-stage method may be not only advisable but imperative.

Much progress has been made toward the solution of the many difficulties encountered in excision of diseased segments of lung in bronchiectasis. This has been due to many factors. Improvement in diagnostic procedures, careful selection of patients, proper preoperative and postoperative care of patients, repeated bronchoscopic aspirations, improvement in methods of anesthesia, and refinement in operative technic have all been responsible for the reduction in mortality rate from 50 per cent to 5 per cent in the last 10 years. Statistical evidence reveals the gratifying fact that complete symptomatic relief may be expected in a majority of patients subjected to lobectomy.

#### SUMMARY

1. Conservative surgical measures are inadequate in the treatment of well established bronchiectasis.
2. A case of bronchiectasis treated by lobectomy, with relief of symptoms for the first time in twenty years, is reported.
3. The excision of diseased lung tissue in bronchiectasis should be considered more frequently as a result of the marked reduction in operative mortality rate.

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## Strabismus Under the Social Security Program

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Hilo

Since 1937 the Hawaii Territorial Board of Health, using funds of the Social Security Program for Services to Crippled Children, has sponsored the correction of eye defects (principally strabismus, congenital or juvenile cataract and ptosis) in individuals under 21 years of age belonging in the indigent or semi-indigent class. This program has been in operation for two years on the Island of Hawaii and this paper is an attempt to analyze our results as they apply to strabismus up to the present time.

Certain results are tangible and can be easily evaluated. Improvement of vision and improvement of the angle of the squint can be measured quite accurately. Improvement of cosmetic appearance is a very real factor, but cannot be measured. Increased cooperation of the patient's family through knowledge of successful cases is a valuable achievement. It is not without significance for the future of medicine that parental consent formerly very difficult to obtain is now, since the institution of this service, a matter of routine in most instances. There is no question that financial considerations played a very significant part in preventing early correction of strabismus. The importance of this delay will be apparent later.

This series covers 21 cases operated upon between January 1939 and January 1941. Some of these are too recent to permit evaluation of the permanent results.

The degree of deviation in most cases is given in prism diopters as determined by the cover test of Duane<sup>1</sup>. This method is more accurate than measurement on the arc of the perimeter. In certain instances, it had to be given in degrees from the perimeter as the squinting eye did not have proper fixation and the cover test could not be used accurately.

Analysis of each individual case is given in the accompanying table. The operations used in the

comitant cases were all resections and/or advancements when increased action was desired, and recessions where limitation of action was indicated. It is not within the scope of this paper to discuss the merits of other procedures. The methods used have been satisfactory in my hands; other methods will doubtless prove equally satisfactory to other surgeons.

Visual improvement in these cases will be given first, as this is considered the most important factor. No case is classified as improved on the basis of minor increase in the acuity of vision. There were 10 cases in which such improvement could be expected. The others either had good vision in each eye, that is, they were cases of alternating strabismus, or they had the central vision destroyed in the squinting eye by disease, in which case no improvement could be anticipated. In five of these 10 cases significant improvement occurred, one returned to normal, and one lost its improvement, the squint recurring due to the child losing its glasses. Children with vision of 20/200 or worse showed only moderate improvement. The one child whose vision improved to normal had vision of 20/50 before operation and was only four years of age. One child was too young for visual acuity tests before operation for a paralytic squint and moved to Kauai shortly after.

The second factor to be considered is improvement in the angle of the squint. Permanent improvement in this angle was obtained in every case but one. This girl had loss of macular function due to disease, and while the immediate post-operative result was good, the angle of squint is at present almost the same as at the time of operation. Ten cases had no strabismus when last measured. One child had a considerable over-correction of internal strabismus with resulting external strabismus after operation, but this regressed with orthoptic training and the eyes are now straight. Parenthetically, it may be stated

that over-correction of internal strabismus is usually not a serious matter because of the great power of convergence. There were no cases of hypermetropia requiring surgery. Surgery on the vertical muscles is indicated only when there is weakness of a specific muscle or muscles and none such were found in this series. There was apparent cure of the angle of squint in 50% of the cases.

The third factor, cosmetic improvement, can be demonstrated best by lantern slides.

Before going further with the discussion of this subject, it is necessary that certain points be understood, particularly with regard to unilateral, as distinguished from alternating, squint. When one eye turns in—for practical purposes we need only consider internal strabismus here—and the child has not reached the age where good central vision has become established in the squinting eye, such vision will never be established as long as the deviation is not corrected, either by glasses, surgery, orthoptic training or a combination of two or all of these measures. We all know of atrophy caused by disuse of a muscle—this is not the same as atrophy due to non-use of the macular elements, but the resemblance is close enough to illustrate the point. Furthermore, if the eye, up to the age of six years, has been turned, recovery of useful vision is extremely difficult to obtain in most instances. This condition is known as amblyopia ex anopsia.

It may be noted in the accompanying table that only two of the children in this series were under

six years of age, hence those with amblyopia ex anopsia had it well established and great visual improvement could not be expected. This is where the program falls down, in that the younger children are not reached and their deviation corrected before serious amblyopia develops. To find the younger child some plan of education is needed. Physicians conducting infant and pre-school examinations, nurses and others concerned should be informed in this matter.

Many physicians and most of the laity believe that a child will outgrow a squint. This is a very serious drawback to its early correction. Parents of these children also frequently believe the child is too young to have an eye operation. This is never the case if the usual indications for surgery have been established. From a practical standpoint, such indications, excepting in paralytic cases, can seldom be determined before the child is two years of age, since accurate refraction is seldom possible before then, and without it surgical correction can only be haphazard. Glasses will frequently correct a convergent squint, and they should be used early, for after the squint has become established and suppression of binocular vision has occurred, they do not do much good. All too often the child is given glasses which do not cure the defect immediately; the parents feel the child will eventually recover because of the lenses, further treatment is delayed, and finally they get used to the presence of the strabismus and fail to have anything further done. It is much easier to get patients to correct a new defect than an old one.

Name	Age	Sex	Corrected Vision	Deviation	Refraction	Operation	Results and Remarks
1. G.Y.  Slides 1 & 2	16	M	20/25 20/30	Alternating exotropia. Prefers rt. 25d, 35d. 4d Rh; False projection. Comitant.	CHA Mixed A Rx	1-11-39	1-21-39: Esophoria 7d distance, orthophoria near. Diplopia due to false projection. 5-6-39: Diplopia disappeared. 5-8-40: Orthophoria for distance & near but weakness of left external rectus, evident on turning eyes to left.
2. F.H.	15	F	20/20 20/200	Lt exotropia 35d, 30d. Comitant. Macular choroiditis	CMA CHA Rx	1-18-39	2-11-39: Exotropia 4d distance, 7d near.
3. A.K.	6	F	20/20 20/200	Lt exotropia & hypertropia, 25°, 10° for distance, 15°, 5° for near. Comitant.	H Aphakia	3-31-39	9-30-40: Exotropia 10d distance, none for near. Small cyst of conjunctiva at site of incision over internal rectus.

Legend: <sup>s</sup>  
*d* = prism diopter  
*H* = hyperopia  
*M* = myopia  
*Rx* = lenses prescribed

<sup>o</sup> = degree  
*V* = vision  
*OD* = right eye

*X* = exotropia  
*h* = hypertropia  
*OS* = left eye

*E* = esotropia  
*C* = compound  
*A* = astigmatism



Name	Age	Sex	Corrected Vision	Deviation	Refraction	Operation	Results and Remarks
4. A.P.  Slides 3 & 4	10	F	20/20 20/200	Lt exotropia comitant 20° on perimeter.	H 4:50 Rx	6-14-39	8-26-40: Poor fixation OS. Eyes appear straight near & distance. At times appears to have exophoria.
5. C.O.  Slides 5 & 6	2	F	? Too young	Lt esotropia Paralysis of left abducens. Noncomitant	?	6-16-39	7-10-39: Eyes appeared straight in primary position. Apparent exophoria & rt hyperphoria for distance. Moved to Kauai.
6. O.K.  Slides 7 & 8	15	F	Fingers at 2 ft. 20/30	Rt exotropia 25d, LH of 10d. Comitant. Old chorioretinitis.	MA Rx	7-24-39	1-18-41: 20d exotropia for distance; 20d exophoria for near.
7. N.S.  Slides 9 & 10	6	F	20/20 20/200	Lt esotropia Paralysis abducens. Contraction of internal rectus. Noncomitant	CHA Rx	8-25-39	10-10-39: 15d of exophoria for near. Eyes straight except on looking to left. 10-19-40: Vision improved to 20/50 OS.
8. G.P.	6	F	20/30 20/30	Alternating exotropia. 25d for near & distance. Comitant.	H No Rx	8-28-39	2-8-41: 5d exophoria for near, none for distance.
9. K.U.	9	F	20/40 20/30	Alternating exotropia 35d, 40d. Comitant.	M CMA Rx	9-25-39	11-14-39: Orthophoria for distance, exophoria 10d for near. 5-4-40: Exotropia 13d distance, 18d near, comitant. Left hypertropia 3d near, 4d distance. Increases with eyes down & to left. Weakness of left inferior rectus.
10. A.K.	7	F	20/30 20/200	Lt esotropia 20d distance 30d near Comitant.	CHA Rx	10-13-39	5-13-40: Eyes straight for distance & near. Good range of convergence & divergence. VOD (20/15), OS (20/20). 2-11-41: Lost glasses last October. Now has esotropia and vision 20/200 in left eye. To have orthoptic training.
11. P.G.  Slides 11 & 12	7	F	20/25 20/30	Lt esotropia four months duration. 35d near, 40d distance Comitant.	CHA Rx	10-13-39	3-21-40: Orthophoria for near & distance. VOD (20/20), OS (20/25)
12. J.C.  Slides 13 & 14	11	M	20/25 20/25	Alternating esotropia 30d near & distance, Rh 10d. Comitant	CHA Rx	11-17-39	12-6-39: Eyes straight for near & distance with glasses. 10-24-40: Esotropia 10d, right hypertropia 11d. Father will not allow glasses to be worn.

Legend: *d* = prism diopter  
*H* = hyperopia  
*M* = myopia  
*Rx* = lenses prescribed

° = degree  
*V* = vision  
*OD* = right eye

*X* = exotropia  
*h* = hypertropia  
*OS* = left eye

*E* = esotropia  
*C* = compound  
*A* = astigmatism

Name	Age	Sex	Corrected Vision	Deviation	Refraction	Operation	Results and Remarks
13. M.H.  Slides 15, 16, 17	4	F	20/50	Rt esotropia 20d distance 40d near. Comitant	CHA No Rx	12-20-39	2-7-40: Exotropia of 15d distance; 5d near at times phoria for near. Orthoptic training started but could not be continued because of distance of patient from Hilo. 12-5-40: No phoria for distance, only 2d esophoria for near. Vision OD 20/15, OS 20/15.
14. G.R.  Slides 18 & 19	7	M	20/400 20/15	Rt esotropia 30d distance 45d near. Comitant	H No Rx	3-1-40	3-13-40: E=10d E'=15d (tropia). 1-20-41: E=10d E'=10d (tropia) VOD 20/400
15. H.R.  Slides 20 & 21	8	M	20/13 fingers at 4 ft.	Lt esotropia 22° on perimeter. Comitant	H 1.50 6.50 Rx	3-1-40	3-8-40: Eyes straight for distance & near. Poor fixation. Cannot use prisms. 1-23-41: Orthophoria for distance & near. Vision OS 20/200.
16. R.R.  Slides 22 & 23	16	M	20/15 20/15	Alternating convergent comitant 50d distance 35d near.	VH No Rx	4-12-40	4-26-40: E=12d, Lh=4d distance; X'=2d, Lh=3d for near. 1-29-41: Esotropia of 10d for distance; E'=O Lh=5d for near.
17. J.G.	15	M	20/300 20/20	Rt esotropia 30° on perimeter. Poor fixation Weakness of rt external rectus. Non comitant.	H CHA No Rx	5-25-40	3-22-41: VOD 20/400, VOS 20/25—. No squint can be measured by cover test. Fixation poor. Appears to be 5° of esotropia on perimeter.
18. T.H.  Slides 24 & 25	15	M	20/20 20/200	Lt esotropia 35d distance and near. OS macular degeneration	CMA Rx Lt high anisometropia	6-14-40	9-27-40: Esotropia of 15d distance, 20d near. Left hypertropia of 5d distance & near.
19. M.S.	17	F	20/15 20/15	Alternating exotropia X=47d, LH=5d Phoria for near. Comitant.	HA No Rx	9-11-40	12-10-40: Phoria at times of 30d. Hyper persists.
20. A.Y.	9	M	20/20 20/20	Alternating convergent comitant E=20d, E'=45d Left hyperphoria 5d for near.	H No Rx	10-7-40	10-28-40: Esotropia 15d for near & distance. 11-23-40: Esotropia 10d for near & distance. Orthoptics not practicable.
21. Y.F.	7	M	20/30 20/300	Left convergent Comitant 30d distance 40d near.	H No Rx	12-28-40	12-31-40: Eyes appear straight in primary position for near and distance. Esophoria of 5d for distance. 1-30-41: No tropia for distance or near. VOS 20/200.

Legend: d = prism diopter  
H = hyperopia  
M = myopia  
Rx = lenses prescribed

° = degree  
V = vision  
OD = right eye

X = exotropia  
h = hypertropia  
OS = left eye

E = esotropia  
C = compound  
A = astigmatism

## DISCUSSION

FORREST J. PINKERTON, M.D.

Dr. Crawford is to be congratulated, not only on his excellent work, but because he recognizes the benefits made possible to a large number of people who, were it not for these corrective procedures, would go throughout their lives with a malposition of their eyes.

I agree with Dr. Crawford that the financial side has played a significant part in keeping these patients from coming to us for assistance. It seems but yesterday that ophthalmologists were doing eye muscle operations in only a small percentage of cases needing this service. Education and progressive attitudes are mainly responsible for the desire to have these corrective procedures done. A few years ago the response was indifferent and doubtful. The medical profession must assume some responsibility for the backwardness of a few years ago and even today parents not infrequently are advised by their family doctor not to have surgery done, to wait until the child is seven, eight, nine or ten, as the child may be expected to outgrow the condition without surgery. When an operation is finally consented to, the most we can expect in a large percentage of these older patients is cosmetic improvement. The deviating eye will as a rule suffer permanent damage so far as vision is concerned and this is increasingly true the older the child becomes.

No child is too young to permit a reliable finding and correction if the ophthalmologist is given an opportunity to do an examination. Glasses may be successfully prescribed as early as one year and it is vital that the refraction be done under atropine. The examiner can reliably ascertain which patient can be benefitted by glasses and which will require some sort of surgery. When surgery is decided upon it should be done soon.

Dr. Crawford touched upon orthoptic training. Surgery alone is not the answer. In my cases as many as possible are kept under observation and postoperative training. It is not all orthoptic training either. By constant effort we make both child and parent eye conscious. The kind of orthoptics I am referring to is far from the racketeering which the profession condemns. Orthoptic training should have for its purpose a sincere desire get as much as possible out of each eye and the combined use of both eyes. We teach them to fuse, to develop abduction and adduction. Above all we try to teach them what is desirable and expected of their eyes. We teach them to read accurately and carefully. Because so many of these patients read poorly they are unsure of themselves and

hesitant. It is apparent that patient sincere effort in training is as necessary as the most perfect surgical procedure. In this respect the program of the Bureau of Crippled Children, in my opinion, has not adequately done its job.

I think the government is stretching a point when it suggests that it is paying an adequate fee for this service. The fee for the surgical procedure alone is small considering the surgeons' training and ability, and while in private practice we might not expect payment from this same class of patient it has always irked me when a social service worker claims they are doing the whole job. In my opinion the ophthalmologist in pre and post operative cases makes a gratuitous contribution equal to what he receives for the surgical procedure. I have in mind many cases that come into the office twice weekly, not for weeks but months, for education and muscle training.

I have checked over 96 case records. I have used a modified cinch type of operation in many of these cases and a guarded tenotomy or recession of the opposing muscle at the same time. Every one of these patients has had careful and repeated refractions under atropine, has had trial periods of orthoptic training, and glasses. The majority of these patients had less than 20° squint, either convergent or divergent. The remainder had as a rule more than 20° squint, of one type or another, which criterion I have adopted as a guide in determining the type of operation to perform. The same procedure in preoperative and postoperative care is followed in all cases.

Approximately 66% of my cases fall in the age group below 10 and of this group most of them are between the ages of 4 and 8. This indicates that parents are seeking correction for their children at an earlier age than a few years ago. It would be more certain of a more perfect result, not only as to fusion and vision, but a more permanent correction as well.

You may get the idea from my remarks that I am critical of the program. I am critical of no part of it except the assumption on the part of the government that it alone is paying the bill. The fact that the hospital, operating room and supplies while in the hospital are paid is probably the main reason why patients agree to early surgery. In this respect the program pays in full. The fee basis for cases is correct, but it should be flexible enough to permit latitude in its application to the individual patient depending on the amount of work done, time consumed in preoperative care, etc.



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# Dermatologic Lesions vs. Syphilis

HAROLD M. JOHNSON, M. D.

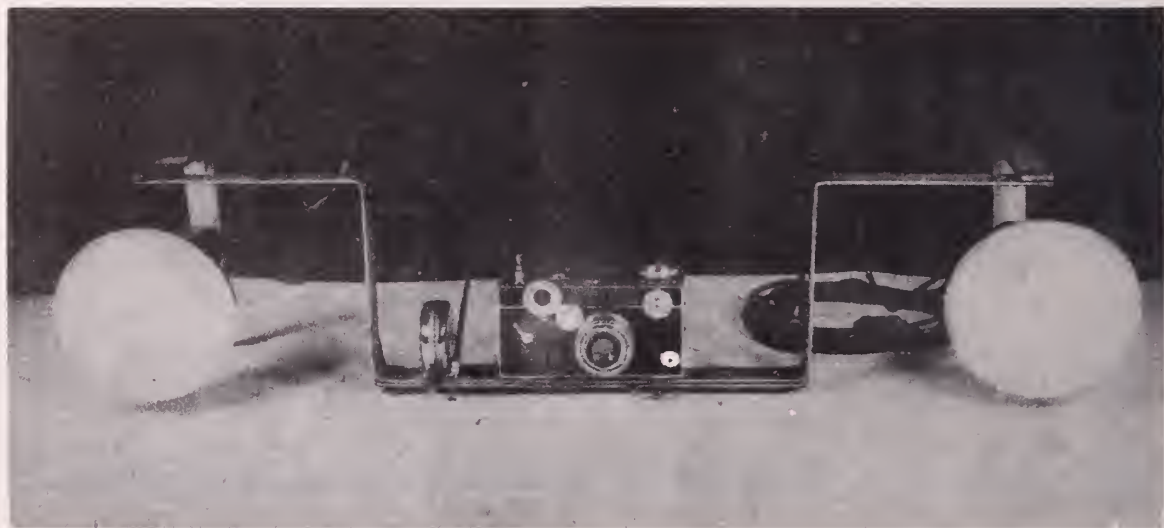
Honolulu

(Colored Lantern Slide Demonstration)

During recent years color photography has been accepted for teaching purposes in the mainland medical schools. It has been a fairly satisfactory method in demonstrating detail and objective findings not available in the older black and white photography.

Since Kodachrome and Dufaycolor came into vogue more natural color transparencies of all in-

aluminum bar 10 in. long with a  $\frac{5}{32}$  in. hole in center for the ordinary camera—Argus, Eastman or Leica. At each end, this bar bends upwards  $3\frac{1}{2}$  in. and over  $3\frac{3}{4}$  in. to clear the barrel of the lamps, and a swivel joint attaches an "L" 4 in. long. At the back of the "L" are mounted two sockets, each holding a General Electric R-2 photo flood bulb. The sockets are wired together to a ten foot extension cord for



Queens Hospital Photographic Service

teresting and unusual cases is possible. Color photography has been ideal for dermatological and syphilologic entities. The clearness of the lesions with natural color demonstrates in many cases the exact replica of cutaneous lesions. The presence of pigmentation, atrophy, cicatrization versus ulceration, infiltration and papular-nodular lesions of the hypoderm, can be presented to the observer with uncanny accuracy.

Artificial light is probably the best type of illumination for taking colored pictures. It is necessary with artificial light to have flat lighting with the patient equally lighted from both sides of the camera.

Schiller (1) has devised a serviceable apparatus for color photography. It consists of an

110 volts. The entire apparatus can be held in the hand as close as possible to the patient, or mounted on a tripod or table.

When ready to use, the camera is attached to the center of aluminum bar, the lights are turned on and the reading taken on the exposure meter.

During the recent Territorial Medical meeting, the author demonstrated colored pictures illustrating similarities between many dermatologic lesions and syphilis. The entire series of photographs presented was taken by the apparatus described.

## REFERENCE

<sup>1</sup> SCHILLER, ARTHUR E.: Natural color photography of the skin. *Arch. Dermat and Syph.* 41: 527-529, 1940.

# Psychosis With Huntington's Chorea

## CLINICO-PATHOLOGICAL REPORT OF A CASE

RICHARD DEMONBRUN KEPNER, M. D.

Kaneohe, Oahu

(ABSTRACT)

Rarely does one have the opportunity to study a patient with Huntington's chorea clinically and by encephalography and later to correlate these findings with those demonstrable at necropsy. Stone and Falstein found in the literature from 1841 to 1935 reports on the pathology of only 159 cases of Huntington's chorea and 16 cases of chronic progressive chorea. It seems worthwhile therefore to report a case which we were fortunate enough to be able to study recently.

A clinico-pathological study of a case of Huntington's chorea was made over a period of 21 months. The patient herself gave an unconfirmed family history of this rare, familial, and hereditary degenerative disease of the basal ganglia and cerebral cortex. Characteristic bizarre jerking choreiform movements of face, trunk, and all extremities were present. Mental changes with paranoid delusions and some deterioration were present.

Encephalographic studies suggested (1) moderate symmetrical internal hydrocephalus; (2)

questionable x-ray evidence of decrease in size of the caudate nucleus bilaterally, more marked on the left; (3) marked localized cortical atrophy of both frontal lobes.

Significant autopsy findings were: (1) marked chronic proliferative hyperplastic leptomeningitis; (2) marked generalized cortical atrophy of the cerebral hemispheres; (3) marked localized atrophy of the caudate nucleus and putamen bilaterally; (4) moderate generalized internal hydrocephalus. There was no evidence of cerebral arteriosclerosis.

Histopathological examination of the caudate nucleus showed an almost complete absence of ganglion cells, the few remaining ones being mere shadows. There was much round-cell infiltration, with some satellitosis and neuronophagia.

Discussion by

Ralph B. Cloward, M.D., Honolulu.



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WHICH SHALL I USE  
FOR GONORRHEA?

WHAT'S GOOD FOR "STREP"?

WHICH PRODUCES  
BEST RESULTS  
IN PNEUMONIA?

MY PATIENT HAS A "STAPH"  
INFECTION—WHAT SULFONAMIDE  
IS MOST EFFECTIVE?

The sulfonamide compounds continue to grow in importance. Three separate drugs have been accepted by the Council on Pharmacy and Chemistry of the A. M. A. Another has been submitted for acceptance. We present on this page the "box score" on three "sulfa" drugs now in widespread use.

	Sulfanilamide N.N.R.	Sulfapyridine N.N.R.	Sulfathiazole N.N.R.
<b>CHEMICAL NAME</b>	(p-amino-benzene sulfonamide)	(2-sulfanilyl aminopyridine)	(2-sulfanilyl aminothiazole)
<b>SOLUBILITY</b> in 100 cc. of water at 37.5° C.	1480 mg.	54 mg.	96 mg.
<b>PHARMACOLOGY</b> Absorption	Relatively uniform and rapid.	Irregular and often poor.	Uniform—very rapid.
Distribution	In all body fluids.	In all body fluids.	In blood but poorly in other body fluids.
Excretion	Rapid.	Slower than Sulfanilamide.	Rapid.
Tendency to conjugation.	Slight.	Marked.	Moderate.
<b>CHEMOTHERAPY</b> ★ Preferred Drug. ● Also Effective.			
Colon Bacillus			★
Dysentery Bacillus			●
Gonococcus		●	★
Lymphogranuloma Venereum	●	●	★
Meningococcus	●	★	●
Pneumococcus		★	★
Staphylococcus		●	★
Streptococcus	★	●	
<b>HOW SUPPLIED BY SQUIBB</b> Tablets	5 grain in bot. of 100, 500, 1000. 7½ grain in bot. of 25, 100, 1000.	0.5 gram in bot. of 50, 100, 1000.	0.5 gram in bot. of 50, 100, 500, 1000.
Powder	4 oz. Rx. bottle.	5 gram vials.	
Crystals	1.0 gram ampuls, box of 5 and 25.		5 gram vials.
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# HAWAII MEDICAL JOURNAL

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## EDITORIALS

*"The Bulletin is dead. Long live the Journal."*

Establishment of the HAWAII MEDICAL JOURNAL signaled by the appearance of this Number 1 issue of Volume 1, should not be considered an end in itself—even though it represents the fulfillment of an aspiration which certain members of the profession have long kept alive.

This is a beginning, rather than an end attained, and it behooves the staff and the rest of the profession to pause to consider of what it is the beginning—what is the task to which the career of the JOURNAL must be dedicated if it is to justify its existence.

Our medical friends from the Mainland, who from time to time have visited Hawaii, have been, with a reassuring degree of unanimity, most complimentary in their estimation of the quality of medicine practiced in the Islands, and of the standards maintained by the profession of Hawaii as compared with those of similar sized population groups elsewhere in the United States. With justifiable pride, the profession here can point to items of individual and group accomplishment which have contributed to the well-being and progress of the community. More often than not, however, it has been individual rather than collective effort which has won results—and seldom if ever has the full force of the whole, united medical profession of Hawaii been exerted to the full measure of its capabilities.

Any factor which tends to marshal and direct this power of a united profession is to be welcomed, and such a factor for good in Hawaii, the JOURNAL well may be.

Knowledge is a source of power, and the dis-

semination of knowledge is one task to which the JOURNAL is dedicated,—not especially generalized knowledge of the sort which can be gained from perusal of the old established national medical journals, but more particularly knowledge pertaining to medicine in Hawaii, that all in our profession here and others who may care to read may know what are our problems and what is being done to solve them. There is something about words put down in black and white on paper which crystallizes thought and makes usable and effective ideas which, conveyed by spoken word, escape from mind and memory all too soon.

The JOURNAL should be a medium by which the minds of our confreres may be brought into focus on problems which concern us all,—problems having to do with better standards, better practice, better health regulations, better laws. Too much of the thinking for the profession in the past has been done by too few. More enlightenment, more interest, more opinions should improve the quality of our thought, and augment the effectiveness of our influence.

The JOURNAL should also be a means through which the effective participation of the profession in community tasks, such as the defense programs, public health education, and communicable disease control, may be improved. In such matters, through lack of information, the efforts of doctors fully willing to put their shoulders to the wheel, have not been fully utilized.

If to the betterment of the profession, and to the betterment of Hawaii, the efforts of the present and future editorial staffs are dedicated, the success of the JOURNAL is assured.

## A SUGGESTED PLANTATION HEALTH COOPERATIVE PLAN

An essential factor in a truly cooperative plan is a consciousness in those who would cooperate of the need for cooperation, and the assumption of the initiative by the potential co-operators.

When the cooperative is the brain child of an outsider, whether this be an employer or a "socially minded" third party with or without a personal axe to grind, the essential factor of true cooperation is likely to be lacking.

One's personal health, even in these days of diminishing individualism, is usually considered to be one's own personal business, with certain exceptions which exist for good and sufficient reasons; and the time-honored relationship between the patient and his doctor is one not lightly to be foregone, or one to which even the most paternalistic employer should be freely admitted, since such admission sometimes brings into the picture, with conflict, factors which might be good for the employer but not for the employee or vice versa.

The definition of purpose as stated in the suggested Plantation Health Cooperative Plan prospectus at hand would seem to assume that "adequate and complete health protection to all plantation employees who are earning more than \$100 a month" is not now available. This is open to question,—if true, we hadn't noticed it,—but it appears that no more adequate or complete health protection is to be offered,—just the same old set-up *but* at cut-rate fees.

The "need" does not appear to be overpowering. The refusal of some employees earning \$90 a month to accept a raise because if they received more than \$100 a month they would have to pay for medical attention is an intriguing thought and one which might suggest need for psychiatric service; but under the plan proposed the same obligation would obtain, even though a cheap service is contemplated.

As for employees not availing themselves of present available services and neglecting minor injuries and diseases because of the expense, is there really any evidence of this? More than a casual and unsupported statement that "these factors tend to break down morale and decrease efficiency" is needed to convince. There are people still who believe that paternalistic devices do more to impair efficiency and morale than situa-

tions which require that a man stand on his own two legs and reap the consequences of his own misdeeds or neglect. And after all, if it is really a question of improving morale and efficiency, aren't the plantation doctor's fees a peculiar point of departure?

The *plan* offers nothing new except, (1) a fixed charge per month which is advantageous in that it permits the bread winner to budget for health needs, and (2) (and here is the "come-on"), cheaper medical care. Now, in medical care as in groceries, or clothing or automobiles, a cheaper cost is always reflected in cheaper quality. In all the studies that have been made of the costs of medical care, there are no data to bear out the assumption that the costs of good medical care are exorbitant or that doctors by and large are overpaid. Good equipment, good materials, good diagnostic equipment and procedure, and good treatment are expensive. Yet every scheme for correcting the cost of medical care eventually gets around to the proposal to cut the physicians' fees,—and so it is with this inspired cooperative. When all is said and done, it boils down to the same hospitals, the same patients, and the same doctors—but working for lower fees. And with that the case, had the doctors the patience of Job, the honesty of the man Diogenes couldn't find, and the willingness of a horse, the quality of their service will inevitably be affected adversely with the shrinkage of their fees.

When plantation physicians are required to work for lower fees at a time when most of them are lying awake nights thinking about next year's taxes and what is happening to their own "social security" and that of their children, the natural consequence will be precisely what happens whenever compensation for anything is reduced: a poorer product.

The prospectus' author (see paragraph on "Objections to Low Fee Schedule") recognizes need for a "psychological drive to stimulate the doctor to give the very best treatment in order to attract clients" but not to the extent of main-

There is much dissembling—much avoidance of permitting a spade to be called a spade—in the paragraphs entitled "Possible Difficulties." When reduced fees reach a doctor's pocket it doesn't make much difference to him whether they are "competitive fees" (which of course they are) or "merely cost allowance to a doctor and hospital as a bookkeeping item of a private corporation making a health cooperative plan



and hospital as a bookkeeping item of a private corporation making a health cooperative plan function." There is something of the aroma of sharp practice in the suggestion that the fee schedule must not be announced as a fee schedule but as a company (sic) allowance which amounts to a "salary to a doctor," but which mustn't be called a salary because of the aforementioned essential "psychological drive."

This same compliance without compliance is noted in the paragraph on "free choice of physicians." To be sure the employes can have free choice of physician,—but with a penalty.

Then there is the question of "abuses by private physicians and by clients" and therein the revealing implication of "or else" which is the joker in every cooperative scheme where the initiative does not arise with the cooperators,—"the member has his job at the (pleasure of the ?) plantation manager and therefore would hardly

want a reputation of abusing something that is for the benefit of all."

The medical profession has no objection to—in fact, it has favored—truly cooperative efforts to distribute the cost of medical care, to make possible budgeting in advance for the cost of illness, especially of the catastrophic type.

If employes of a manufacturing plant, a business, or a plantation, or if any group of individuals feel the need for such a cooperative effort and if they initiate it, and organize it and make their arrangements with the medical profession for care conforming to principles which will safeguard the quality of medical care and the excellence of medical practice, all well and good.

But employer-conceived and employer-administered "cooperation" provokes the suspicion that the health and welfare of employes is not all that is at stake; and when the first prospectus of such a plan has nothing to offer but "cheap medicine" and a hint of "take it or else," it's time to reach for the brakes.

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While The JOURNAL disapproves in detail (though not necessarily in spirit) of the plantation medical plan reproduced elsewhere in this issue and commented upon above, we feel strongly that free and open discussion of this and similar matters is highly desirable. This situation is a critical one. Whatever step is taken now will form the pattern of a large part of medical practice in Hawaii for years to come, and will affect not only the plantation physicians, but physicians in private practice throughout the Territory as well. We therefore urge every physician to study the plan carefully and send us an expression of opinion regarding it, whether favorable or critical. No communication will be published without the author's specific permission.

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"... In auscultating the sounds of the heart in some individuals still labouring under or convalescing from, acute articular rheumatism, I was not a little surprised to hear a strong file, saw, or bellows sound; such as I had often met

with in chronic or organic induration of the valves, with contraction of the orifices of the heart. Now nobody would suspect an affection of this kind amongst the majority of persons who suffered with rheumatism and were submitted to our examination. Many of them were for the first time affected with articular rheumatism, and had hitherto enjoyed the most perfect health. I then called to mind other cases of acute disease of the heart, during which I had heard the bellows and file sounds, and I resolved to explore, attentively, the heart and its functions in all those affected with rheumatism whom I should meet with. Thanks to this exploration, I soon discovered that an acute affection of the heart, in cases of acute articular rheumatism associated with violent fever, was not a simple accident, a rare or as it were a fortuitous complication, but in truth a most usual accompaniment of this disease."

—Bouilleaud, Jean B. (1796-1881)

*Nouvelles recherches sur le rhumatisme articulaire*  
Paris, 1836

# PROGRESS IN INTERNAL MEDICINE

## TYPHUS VACCINE

After a great many mistakes and false starts, there is finally available commercially an efficient prophylactic inoculation against endemic typhus fever. The Rickettsia are grown in the lungs of rats according to the method of Castaneda, and three subcutaneous injections of the formolized vaccine are given. The dose is  $\frac{1}{2}$  cc. followed in a week by 1 cc. and after another week by 1 cc. It is stated by the manufacturers, Eli Lilly and Co., that there is little or no general reaction.

It is not even suggested that such a measure is worthy of widespread application throughout the community, but for individuals who, by the nature of their occupation or environment, are more than ordinarily exposed to the danger of contracting typhus from contact with rats or fleas, it might well be worthwhile.

## EGG-WHITE FOR CANCER?

Biotin (Vitamin H, Coenzyme R, or the anti-egg-white-injury factor) has been found to be an absolute necessity for the normal vital functions of more types of plants and animals than any other coenzyme or vitamin so far discovered. Practically all bacteria are unable to live without it. West and Guadlum (Science 93:525 (May 30) 1941) have recently announced that practically all tumors contain a much higher biotin content than the normal tissues of the individual in which the tumor is growing. It is suggested by Lawrence (Science 94:88 (July 25) 1941) that the overfeeding of egg-white to individuals afflicted with malignant neoplasms might well result in serious damage to the cancer cells because of the destruction of biotin which would rapidly result from the overdosage with egg-white. Since biotin seems to be in the neoplastic cell itself, this might well have an action upon the cells analogous to that of Coley's fluid. So far it is only a nebulous hypothesis but it is, perhaps, one step ahead in our knowledge of cancer which may ultimately lead to its complete control.

## THIAMIN FOR TOXEMIAS OF PREGNANCY?

J. E. Ayre (Canad. M. A. J. 44:575 (June) 1941) suggests that large doses of thiamin may well serve as an antagonist to the excessive progesterone content of the blood, one possible factor in the endocrine imbalance that may cause the toxemias of pregnancy.

## SPOILED SWEET CLOVER

Drs. H. R. Butt, E. Z. Allen, and J. L. Bollman of the Mayo Clinic report trials of a new chemical derived from spoiled sweet clover which very much resembles heparin in its action. It is a compound of coumarin, and was originally isolated and prepared by Prof. Carl P. Link at the University of Wisconsin. It has many apparent advantages. It is efficacious when given by mouth and its action is very prolonged; also, it is extremely cheap. Attention was invited to the substance because it was found to be responsible for a very serious bleeding disease of cattle who had eaten spoiled sweet clover.

## SOLUTION SODIUM ASCORBATE FOR INTRAVENOUS ADMINISTRATION OF VITAMIN C

For patients who are severely ill or with abnormal requirements of vitamin C such as are connected with surgical procedures, and for patients with poor utilization or faulty absorption of this vitamin, E. R. Squibb & Sons now supply Solution Sodium Ascorbate for intravenous administration. Made from the sodium salt of pure synthetic ascorbic acid (vitamin C), Solution Ascorbate contains per 1 cc. an amount equivalent to 100 mg. of ascorbic acid (2,000 U. S. P. XI units of vitamin C).

The average dose of Solution Sodium Ascorbate is 1 cc., equivalent to 100 mg. ascorbic acid. (One clinician reports giving as high as 10,000 mg., 10 grams, intravenously in a single dose to an adult.) The Squibb leaflet on this product gives suggested dosages in infantile scurvy, severe adult scurvy, capillary fragility and surgical patients.

S. E. Doolittle, M.D.

# RECENT ADVANCES IN SURGERY

## THE TREATMENT OF FRESH TRAUMATIC WOUNDS

Wars have repeatedly stimulated an interest in the treatment of fresh traumatic wounds. This war is no exception and a wealth of material has been written to date. Important observations made during the Napoleonic wars are still used and it is doubtful if some will ever be replaced. Much that has been written during the past year is simply an elaboration of these fundamental principles. In the present conflict, speed of transportation has enabled the surgeon to receive the majority of wounds within the period of contamination (seven hours) during which a primary suture can be safely attempted. Recognition of the importance of attacking wounds involving nerves, tendons, bone, or those which may have pierced body cavities, only in the operating room, is now universal.

### First Aid

With the present popular demand for first-aid teaching, a correct understanding of wound healing is necessary. The universal use of antiseptic substances injurious to living cells cannot be too strongly condemned. No substance superior to soap and water, for mechanical cleansing of the wound, has as yet been demonstrated.

Proper evaluation of the general condition of the patient is the most important factor in first-aid work. Control of hemorrhage by a sterile local pressure dressing has been shown to be superior to the tourniquet. Seldom does one see a wound in which bleeding cannot be controlled by a pressure dressing.

It has been repeatedly demonstrated that wounds involving nerves, tendons, important blood vessels, bone or body cavities should be strictly left alone. They should be covered with a simple sterile dressing, immobilized and sent to a main operating room where satisfactory toilet of the wound may be carried out. The great temptation in first-aid is to do too much rather than too little.

### Shock and Replacement Therapy

The most important factor in the treatment

of an extensive wound especially the crushing injury, is the proper evaluation of the general condition of the patient. Experimental work in recent years substantiates the theory that the primary objective in the treatment of traumatic shock is the restoration of blood volume. This reduction in blood volume is caused chiefly by hemorrhage and by loss of plasma either locally at the site of injury or generally as a result of increased capillary permeability. The most effective way to permanently restore blood volume is by the use of whole blood or plasma. Plasma is preferable because a unit volume supplies more osmotically active protein than does whole blood. During war the more readily preservable plasma is better adapted to cope with complicating circumstances. Dried plasma may eventually replace the sterile liquid plasma because of ease of preservation. The reduction in mortality rate by the proper replacement therapy has been the most gratifying advancement in the treatment of major wounds in the past decade.

Prevention of shock by relief of pain, correction of dehydration, warmth and immobilization is also important.

### Debridement and Wound Suture

Four hundred years ago Pare first advocated the fundamental principle of wound treatment now commonly known as "debridement." This term, coined during World War I, means the removal of foreign bodies and debris, and the prevention of necrosis or elimination of necrotic tissue. When properly done within the first seven hours and followed by irrigation with copious amounts of saline, primary wound healing can be expected in a majority of cases.

Wounds are now closed without drainage and if closure without tension is impossible, relaxation incisions or skin grafts are used. The tenets laid down by Halsted a half century ago are now universally practiced. Fine non-absorbable suture materials of cotton, silk or stainless steel wire are gradually replacing catgut. Clinical appraisal as well as experimental work has shown the superiority of non-absorbable over absorbable suture material. An interesting



study made by Faris in which he used the anterior chamber of the rabbit's eye to study reaction to various types of suture material, revealed little or no reaction to silk, cotton and stainless steel wire and marked reaction to catgut.

### **Sulfonamides**

An attempt to prevent infections in wounds was made by local implantation of sulfanilamide following the good results obtained in treating streptococcus infections with the drug orally. Key made quite an extensive study of its use in compound fractures after thorough debridement, designed to indicate whether local sulfonamide implantation would interfere with wound healing. He found that the introduction of these drugs in compound fracture wounds before closure, in the joints and serous cavities, produced no significant alterations in the character of wound healing. Wound irritation was least apparent, however, with sulfanilamide, and they attribute this to the fact that, being soluble, this drug produces less foreign-body reaction than the comparatively insoluble sulfapyridine and sulfamethylthiazol.

Russel and Falconer showed that the application of powdered sulfanilamide to the rabbit's brain does not cause any appreciable damage to the tissue. Throckmorton demonstrated the local application of sulfanilamide to the rat's peritoneum to be innocuous. In the same experiment sulfapyridine produced sufficient peritoneal injury and local inflammation to bring about its rapid walling off and subsequent uncertain solution. There was delayed absorption of sulfathiazole and immediate foreign body reaction.

Many authors have noticed delayed wound healing following the use of sulfathiazole, presumably because of its insolubility.

Generally reports concerning this direct frontal attack on the problem of wound infections have been both enthusiastic and disparaging. However most of the reports have been devoted to a clinical appraisal of the subject. From a survey of these reports and from observation of wounds in which the various sulfonamides have been used, it is probably accurate to report that sulfanilamide is superior to sulfathiazole and sul-

fapyridine. The latter two are not suitable for local application because of their non-absorbable characteristics and subsequent deterrent to proper wound healing.

Whatever the ultimate outcome to this fascinating subject, a word of caution is in order. Surgeons should not develop a false sense of security in using this drug and neglect certain fundamental principles in the treatment of wounds, which still remain the most important factors in obtaining primary wound healing. No procedure has as yet been devised which will replace careful hemostasis, gentleness to tissue, meticulous debridement, the use of fine suture material and proper immobilization. The local use of sulfanilamide should be used only after all the above tenets have been fulfilled.

### **Immobilization of Wounds**

Baron Larrey emphasized the importance of immobilization of wounds several hundred years ago. Although many surgeons have utilized this important principle for many years, interest in it has only recently been revived.

Trueta demonstrated its value, during the recent Spanish Civil War. Immobilization of soft tissue wounds has proven to be just as valuable as it is in wounds involving broken bones.

### **General Treatment of Patient**

Correction of deficiencies of plasma, protein, fluids, electrolytes and vitamins has greatly aided wound healing.

Rogers Lee Hill, M.D., Honolulu.

## **QUEEN'S HOSPITAL TO RECEIVE FEDERAL ALLOCATIONS**

Word has been received from the Federal Works Agency Administrator that \$250,000 has been granted to Queen's Hospital for the building of a wing to contain not less than 100 beds. This allocation covers construction costs only; the hospital is required to provide the funds for furnishings and equipment.

Queen's Hospital has also received an allocation from the Surgeon General's appropriation for increasing the School of Nursing by 25 additional students. This will bring the student roll up to 100.

# LEPROSY IN HAWAII: I

## ADMINISTRATION

On January 3, 1865, a law to prevent the spread of leprosy was passed by the legislature of the Kingdom of Hawaii under the reign of King Kamehameha V. Compulsory segregation of all leprosy patients was inaugurated, and this method of control has been, and still is, in force. Between 1865 and 1941 about 8232 leprosy patients have been isolated at Kalihi Hospital in Honolulu and Kalaupapa Settlement, on the Island of Molokai. Over 4000 of these occurred in the 25-year period previous to 1890 and about 4232 in the past 51 years. The fact that it required 51 years to accumulate about the same number of leprosy patients as were found during the first 25 years of the existence of the segregation law, seems to indicate that compulsory isolation has played an important part in reducing the incidence of leprosy. During the past 10 years the number of new cases found in each year has been as follows:

1931-1932 .....	60	1936-1937 .....	51
1932-1933 .....	63	1937-1938 .....	46
1933-1934 .....	63	1938-1939 .....	35
1934-1935 .....	48	1939-1940 .....	38
1935-1936 .....	50	1940-1941 .....	32

Prior to 1931 leprosy administration was in the hands of the Board of Health. For various reasons the Legislature of 1931 caused a change to be made in the administration of affairs pertaining to leprosy and created the Board of Hospitals and Settlement with all the powers heretofore vested in the Board of Health. The Board of Hospitals consists today of five members appointed by the Governor for terms of four years. The present members are H. A. Walker (chairman), W. H. McInerney, G. N. Rothwell, T. M. Mossman, M. D., and F. Alsup, M. D. The Board appoints a general superintendent, who at present is H. A. Kluegel, to supervise the various divisions—the Out-Patient Dispensary, Kalihi Hospital, Kalaupapa Settlement, and the Main Administrative Office.

**The Out-Patient Dispensary.** This dispensary provides the medical services for the Board. All suspects of leprosy are examined here for official certification. In addition, temporarily released patients, permanently or temporarily re-

siding on Oahu, and relatives and children of any patient of the Board may receive medical examination and treatment at this office. The dispensary is located at 282 North Kukui Street and is administered by the Board's Physicians, Drs. James T. Wayson and Edwin K. Chung-Hoon.

The leprosy suspect makes his first contact with the Board of Hospitals and Settlement at this office, where the disease is diagnosed and the new case of leprosy is officially certified. There are only two methods whereby a person may be diagnosed, legally, as being afflicted with leprosy: by a legally constituted board of three physicians, one of whom is the patient's choice, the second is chosen by the Board of Hospitals and Settlement, and the third by the Hawaii Territorial Medical Association; or by the Board's Physicians, if the patient waives examination by the board of three physicians. During the fiscal year ending last June 30th, 2104 persons were examined by the Board's Physicians, 32 of whom were new cases of leprosy.

**Kalihi Hospital.** The law allows the new leprosy patient five days after certification to close his business affairs before entering the hospital for treatment. Kalihi Hospital serves primarily as a receiving and treatment center, and regular medical attendance is provided by the United States Public Health Service. Its physicians are at present Drs. C. R. Eskey and J. Love, who, in addition to caring for the medical needs of the patients, operate the U. S. Leprosy Investigation Station located on the hospital grounds. Kalihi Hospital has a capacity of slightly over 100 patients, and when the census approaches this limit, transfers to Kalaupapa Settlement on the Island of Molokai become necessary. The criteria of suitability for such transfer will be discussed in subsequent issues of the JOURNAL.

**Kalaupapa Settlement.** This settlement, on the Island of Molokai, is located in an ideal spot for the care of persons afflicted with leprosy. The steep mountains, cutting off this peninsula of some 8000 acres, afford complete privacy for the little village of 400 people who live as nor-



mal a community life as they would on the "outside." Certainly they are spared the gazes of the curious and the ostracism of their more fortunate fellow men. They may live in private homes or in rooms and apartments of "group" homes. They retain their franchise to vote. They are free to operate businesses of their own choosing or they may secure employment with the Board of Hospitals. The settlement is divided into a residential center of private homes and group homes; a hospital center with a 50-bed hospital offering medical, surgical, and dispensary services of all types; a commercial center which consists of a department store from which patients purchase on a ration basis, a laundry, an ice house for the storage of perishables, a meat market, a poi shop, a warehouse, a post office, and an administrative office; a community house where current motion pictures are shown and where other forms of recreation may be provided. Scattered throughout the settlement are churches of all denominations with priests and ministers in regular attendance. The resident physician in charge of the Settlement is Dr. I.

D. Hirschy, with Dr. N. R. Sloan as his assistant. The Superintendent of the Settlement is R. Anderson.

**Main Administrative Office.** This division is under the direct supervision of the general superintendent, H. A. Kluegel, whose office is located in the Territorial Office Building in Honolulu. As the name implies, the function of this office is purely administrative, including purchasing, supplying, and financing of all the divisions of the Board of Hospitals. A welfare worker also has her office here, and she maintains contact with the patients on temporary release, children of leprosy parents, and other relatives of patients.

A brief summary of leprosy administration has been presented in an endeavor to identify the Board of Hospitals and Settlement and the individuals connected with its various divisions. In later articles more details concerning the disease and its care will be offered.

EDWIN K. CHUNG-HOON, M. D.

## For the local Treatment of Acute Anterior Urethritis

(DUE TO NEISSERIA GONORRHEAE)



A complete technique of treatment and literature will be sent upon request

\*Silver Picrate is a definite crystalline compound of silver and picric acid. It is available in the form of crystals and soluble trituration for the preparation of solutions, suppositories, water-soluble jelly, and powder for vaginal insufflation.

Silver Picrate, Wyeth, has a convincing record of effectiveness as a local treatment for acute anterior urethritis caused by *Neisseria gonorrhoeae*.<sup>1</sup> An aqueous solution (0.5 percent) of silver picrate or water-soluble jelly (0.5 percent) are employed in the treatment

1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," *Am. J. Syph., Gon. & Ven. Dis.*, 23, 201 (March), 1939.

JOHN WYETH & BROTHER, INCORPORATED, PHILADELPHIA



# PLANTATION NEWS

A health plan, as given below, is said to have been submitted to plantation managers a couple of weeks ago accompanied by a covering letter as follows:

"We enclose herewith suggested H.S.P.A. Health Cooperative Plan as prepared by Dr. Larsen along the lines of his discussion at the last managers conference, and also suggested Plantation Health Cooperative Plan. We suggest that you give these to your doctor for study, and that you let us have your comments as soon as possible. It is planned to have a further discussion with the H.S.P.A. Health Committee in the near future.

"It is quite possible that we may not be able to obtain the services of an experienced man to run such a plan on an H.S.P.A. basis. In that event a plan along the line of the Plantation Health Cooperative Plan could be adopted by each plantation."

## A SUGGESTED PLANTATION HEALTH COOPERATIVE PLAN

### THE PURPOSE

The purpose of the health cooperative plan is to give adequate and complete health protection to all plantation employees who are earning more than \$100 a month.

It is a private company plan in which the plantation has paid for the overhead costs (doctor's office expense, equipment, instruments etc.) and is trying to give assets in health and protection to its key group of employees at the least possible cost while at the same time protecting the doctor so that he will get a fair remuneration for this group of patients. It must be emphasized that such a plan can not be compared with a private insurance plan, such as that of the Hawaii Medical Service Association, in which overhead costs must be carried by the individual doctor and put into the charge.

### THE NEED

At the present time the plantation and plantation doctor consider employees earning more than \$100 a month as private patients to be charged private rates.

This method has led to several undesirable and unsatisfactory conditions. Some employees who earn \$90 a month refuse raises in wages be-

cause they know that an income of more than \$100 will mean that they will have to pay for all medical attention which was formerly free; many workers do not go to the doctor for the care of minor cuts, injuries, or diseases because of the expense, and later these conditions result in serious complications.

These factors tend to break down the morale and decrease the efficiency of the most important group of workers on the plantation. A co-operative health plan that will take care of these factors is, therefore, essential.

### THE PLAN

Workers shall be divided into groups A B and C according to income, and shall pay a monthly fee on a sliding scale. The following schedule is suggested:

	A \$101 to \$150	B \$151 to \$250	C \$251 to \$350
Employee .....	\$1.50	\$1.75	\$2.50
Spouse .....	1.10	1.30	1.95
First Child .....	.85	1.05	1.35
Second Child .....	.65	.80	1.00
Third Child .....	.50	.60	.80
Maximum for family ....	\$5.00	\$6.00	\$8.00

It has been found in experimental cooperative health plans at Aiea and Kahuku plantations that these rates are well within the ability of these people to pay, and the income from this amount has been sufficient to pay the doctor, the hospital, and consultation fees.

Payment to doctors for services shall also be fixed on a sliding scale. The charges cannot be compared with those of doctors in private practice . . . amounts to from 30% to 40% of the charge. Hence, it is recommended that at the start of the plan, the fee to the plantation doctor should be the industrial fee schedule, less 30%.

If the patient wishes to go to any other doctor or any other hospital than those on the plantation, the plan would agree to pay the plantation allowance on the other doctor's or hospital's charge. This would operate in the following manner: If the plantation doctor were allowed \$50 for an appendicitis operation of a person in Group A and the patient went to a private doctor who charged \$75 for the operation the plantation health plan would pay \$50 and the patient would have to pay the difference. In this way, the patient is allowed free choice of a physician without interfering with the individual fees of any group of doctors.

## ORGANIZATION

To hear local complaints and to look into local abuses, each plantation should have a board composed of the plantation manager, the doctor, and one member of the cooperative.

The fee is to be collected by the plantation office and deducted from the employee's monthly pay.

## SETTING UP THE PLAN

It is suggested that the application form contain a complete statement of the benefits and costs. On the application, the client should state that he is in good health, or he should mention conditions from which he has previously suffered or has at the present time.

The doctor shall also sign the application blank that as far as he knows the statements are correct. Therefore, as soon as a medical claim is made, the record shall be checked and the claim paid immediately if the service was not for a pre-existing condition.

Any pre-existing illness or previous chronic ailment or correction or a pre-existing deformity shall not be paid for from the fund. Surgery required by such pre-existing conditions as hernia, hemorrhoids, fibroids, or other tumors, if they are later to be corrected, shall not be covered.

No pregnancy that began prior to the beginning of membership shall be paid for, but any pregnancy that develops after the patient has joined shall be cared for. After the first year of the plan, a complete physical examination shall be allowed for each applicant.

Any person who wishes to withdraw can do so at any time by giving a month's notice. He can be readmitted at any time by making out a new application form.

## POSSIBLE DIFFICULTIES

**Objection to low fee schedule.** The medical societies might object to the schedule because they have opposed all insurance schemes which look like low fee schedules. However, the plantation fees should not be considered competitive fees. They are merely cost allowance to doctor and hospital as a bookkeeping item of a private corporation making a health cooperative plan function. It must not be announced as a fee schedule but as a company allowance which amounts to an actual salary to the doctor, a salary based on

the amount of work that he does for these patients. Some have suggested that it be an actual salary, but this does not allow for any psychological drive to stimulate the doctor to give the very best treatment in order to attract clients.

**Free choice of physician.** A second objection of the medical societies would be expressed if free choice of physician were not allowed. They have maintained constantly that any plan that does not allow people the free choice of their doctor has been detrimental to the healthy development of private practice. The plantation doctors have felt that this is a proper objection, and, therefore, free choice of physician should be allowed. However, it has been found by the Hawaii Medical Service Association that free choice led to the greatest and most dangerous abuse because some clients and doctors let the plan carry all the traffic would bear.

**Abuse by private physicians.** There is always a danger that a private doctor will try to obtain as much of a service charge from the plan as possible. However, the fact that the plan will allow only a portion of the private doctor's fee, the remainder to be paid by the patient, will be a restricting influence. Yet the additional charge to the patient will not be so great as to prevent consultations with private physicians.

**Abuse by client.** It is believed that abuse by the client is prevented by the fact that the member has his job at the plantation . . . and, therefore, would hardly want a reputation of abusing something that is to the benefit of all. However, the possibility of abuse must be recognized because many similar health plans have been wrecked by doctor-patient abuse.

**Objections from plantation doctors.** The plantation doctor has always wished to restrict the plantation hospital for his own private use and direction. However, under the pressure of medical societies demanding free choice of physician, this would have to be changed. Any doctor who is in good standing in the Medical Society should be allowed to treat any of the plantation cases in the hospital and under the regular plantation rates. If any doctor should abuse the privilege of hospital use, the plantation doctor can present the evidence before his medical society. The use of surgery, as at the Queen's Hospital, shall be limited to such doctors as have had proper surgical training.

# Medical Preparedness Activity in Hawaii

In June 1940, at the request of the A.M.A., Dr. Clarence E. Fronk, already acting as liaison officer between the local Army authorities and the civilian community, was appointed by the officers of the Territorial Medical Association to represent them on the National Committee on Medical Preparedness.

Currently, for the period 1941-42, Drs. Fronk, R. B. Faus, Sam Wallis, Thomas Keay, and J. A. Burden are functioning as the Territorial Preparedness Committee, responsible for furthering the county programs under the direction of local committees appointed by the respective county medical societies.

**HONOLULU:** In 1940 a preparedness committee was appointed by the President of the Honolulu County Medical Society to prepare a plan, program and schedule for training units to take care of civilian casualties in the event of a disaster—such as war, earthquake or fire. That committee consisted of Drs. Fronk, Joseph Palma, Fred Lam and James Kuninobu. These men laid the ground work for a rather ambitious program which is now well under way. On April 11, 1941, the Medical Society held a special meeting for the purpose of electing a committee, consisting of Dr. H. L. Arnold, chairman, Drs. F. J. Pinkerton, James R. Judd, Joseph E. Strode, N. P. Larsen, Robert B. Faus and Paul Withington. These men took up the work from the point it had reached and Dr. Faus was designated executive officer of the committee to carry on the work which he was already doing more or less on his own and without any funds except those supplied from his own pocket. The Honolulu Chamber of Commerce and the Red Cross have since assisted generously in providing funds for the prosecution of this program.

On the advice and with the assistance of Colonel King and Captain Gay of the Medical Corps of the Army, the city has been divided into zones consisting in general of circles of about a half-mile radius around seventeen schools or other buildings suitable for the purpose of aid station locations. In these have been installed aid stations composed of two physicians and a larger number of nurses, nurses' aids, litter bearers, cooks, utility men, etc.

The first phase of the training program was instruction in first aid to all of this personnel. The second phase of the program, now going on consists of training the units to function as such

in the finding, tagging, treating, sorting and transporting of injured to aid stations and thence to hospitals. Considerable equipment for these stations has been furnished by the Army through the American Red Cross. Two ambulances have been donated by the Consolidated Amusement company and the Associated Hard Liquor Dealers of Honolulu, and the Hawaiian Pineapple Company is organizing a unit equipped with an ambulance to cover the industrial section and Iwilei. Meetings of these units are held twice a week, on Mondays and Wednesdays, in periods lasting for two hours. About 3,000 lay workers have been enrolled and of these about 1600 are still in training. R.O.T.C. units of the various city schools have supplied instructors in military drill, only enough military drill being given to each unit to insure that it would be able to respond as a unit, it being almost impossible to handle groups of such size without some fundamentals of military organization.

The sacrifices made by physicians, nurses and laymen who have worked long and hard at this job through these many months can scarcely be too highly praised. Much more remains to be done, particularly the enlistment of additional male help to provide for the heavy duties, such as litter bearing and loading and unloading ambulances, which women cannot do. On the whole the committee feels that the city is reasonably well organized for the first aid care of casualties which might result from aerial or other hostile attacks. In the near future it is intended that training shall become less onerous and perhaps be restricted to one meeting a week or two a month.

The most serious obstacle in the way of the entire program has been the obvious belief of a large section of the population of the city that these efforts are not necessary or likely to be of service. The committee shares in the belief that war is not likely to come to Hawaii in a way to seriously affect the civil population; but we are very sure that it is easily possible for such an attack to be made, and, if it were made, the loss of life—without some preparation for the immediate first aid care of casualties—would be ten times what it would be if these units were functioning as we expect them to. If communities under a democratic form of government cannot do this sort of thing for themselves, then we are already on the way toward some form of totali-



tarian government such as seems to be growing so popular in Europe today.

The passage of some sort of an M-Day bill to provide governmental funds for the carrying out of these projects and also to provide for governmental authority will tremendously accelerate and improve the quality of the work which we are doing. Many requests have come in from medical men on the outside islands for information as to the nature of our program and these requests have been answered promptly and fully, we think. Each island, it is intended, shall care for its own casualties, the work merely being co-ordinated when necessary by the Governor's Disaster Council.

**ISLAND OF HAWAII:** Following a meeting on April 24, 1941 with Dr. Fronk, of Honolulu, Capt. Gay of the Army, and executives of the Hawaii County Nurses' Association, the Red Cross, the Dental Society, and the Board of Supervisors, a preparedness committee was elected on May 6th consisting of Dr. Thomas Keay, Chairman, and Drs. Orenstein, Sexton, Patterson and Crawford. At a later date Carl E. Hanson, manager of Bishop Bank's Hilo branch was added as liaison officer. Dr. Orenstein was chosen to organize personnel and Dr. Crawford was appointed supply officer.

On May 19th the chairman went to Honolulu to orient himself with the plan under way there. Based on the information brought back the committee decided that only one mobile station, planned and equipped according to specifications and drawings supplied by Dr. Faus, was necessary for the City of Hilo since patients could be quickly evacuated either to their homes or to the numerous hospitals in and about Hilo. Hilo is much better provided for than Honolulu in that there is always a surplus bed capacity and room for ready expansion. Ordinary delivery vans, holding one patient and manned by their regular drivers will be supplied by commercial houses.

All work is being done voluntarily and all departments are functioning well. Our only difficulty has been getting a sufficient number of young men for first aid work and to act as litter bearers. The willing volunteers may not always be the type suitable for carrying litters and using pick-axes. If this indifference continues, some system of selective drafting may be necessary to complete the personnel; however, this would not be within our province.

**ISLAND OF MAUI:** The committee for Maui, consisting of Drs. McArthur, Patterson, Kusunoki, Anderson and Burden, has outlined a general plan for the island and has appointed a chairman for each district to carry out those plans as follows: F. A. St. Sure for Hana; James Fleming for Paia-Haiku; George Von Asch for Puunene-Kahului; Wm. Osmer for Wailuku, William Dunn for Lahaina; Douglas Murry for the Island of Lanai and Homer Benson for the Island of Molokai.

The work of the central committee has been divided as follows: R. J. McArthur, supplies; Wm. Patterson, hospital expansion; C. J. Kusunoki, communications, and Emory Anderson, personnel.

A portable central first-aid unit is being organized in the Wailuku district, which is to be the nucleus of the program for the entire island. It will be so planned that it may be set up at the site of a disaster in any part of the island. In all the other districts, ambulance units, with attached units of litter bearers and field first-aid workers, are being trained. Those will be called on as needed to aid the central unit in collecting the injured, and transporting them to the first-aid station and later if required, to the various hospitals.

In addition it is planned to train, under the supervision of the head nurses of the various hospitals, men and women as nurse's aids and orderlies. This training will consist of lecture work and actual hospital experience.

The programs for the islands of Lanai and Molokai have been left in the hands of the district directors for those islands.

**ISLAND OF KAUAI:** Dr. Faus met with medical men at the Lihue Hotel, Kauai, on August 21st and a program for medical preparedness was set up with Charles Fern as coordinator, Webster Boyden in charge of personnel, J. M. Kuhns, medical information, Sam Wallis, plans and training and M. A. Brennecke, supplies.

Dr. Wallis is to determine the size and number of units required to service the area running from Waimea to Hanalei, and supervise the organization of such units, to consist of about 30 people including a doctor, dentist, trained nurse, supply clerk, general clerk, a squad of medical aid men, nurses' aids, litter bearers and utility people, is proceeding forthwith.

## PLAGUE

Warning was giving at the last Honolulu County Medical meeting to all doctors, especially of the Army and Navy, to be on the look-out for plague infested rats in the territory.

Returning from their mainland trip, Drs. Fennel and Doolittle extended the Aloha of Dr. N. E. Wayson to all his friends in Hawaii. Dr. Wayson is in charge of the plague laboratories of the U. S. Public Health Service and is doing a very important piece of work in California. According to his spot maps, plague has gotten away from the ground squirrels in California to the chipmunks, rats and other wild rodents and is knocking at the front door of Kansas and Iowa.

The sudden rise of rat plague on the mainland in the accepted 30 year interval is also in evidence on the Hamakua Coast of Hawaii. Where we had one or two plague rats a month, five or six months ago, we have 30 now. We must keep constantly on the look-out, and particularly on Oahu. One case of human plague found on this island and the port of Honolulu will be closed. The man with a severe headache and a rash might be the first case of plague on Oahu. The Army and Navy doctors especially should be on the look-out for it in their cantonments, and we should not permit ourselves to be as unprepared against this possibility as we were in the case of influenza during the last war.

Official release from the U. S. Public Health Service in Washington is informative and applies as well to Hawaii in its warning to exert control measures.

"Evidence that plague infection among wild rodents of western United States is spreading eastward prompted Surgeon General Thomas Parran of the United States Public Health Service to call a plague control conference August 28-29 at Salt Lake City, Utah. The conference was attended by health officers from California, Oregon, Washington, Nevada, Montana, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico and North Dakota. The purpose of the conference will be stimulation of rat control programs in urban and rural areas.

In the past, outbreaks of human plague have almost invariably been preceded by marked increase in the disease among animals which harbor the infection. Plague is passed from rodents to humans by infected fleas.

Surveys conducted by the Public Health Service in 1935 revealed plague infection among wild rodents in Montana, California and Oregon. In each succeeding year, including 1941, infection has been demonstrated in ground squirrels, chipmunks, rats, marmots, and other wild rodents in Arizona, California, Idaho, Montana, Nevada, New Mexico, Utah, Washington and Wyoming. Infection among rodents has been discovered recently as far east as North Dakota.

The first outbreak of human plague in this country occurred in 1900 in San Francisco. Plague in California reached epidemic proportions in 1907-08. Since 1900 there have been 502 cases and 315 deaths in this country. Two human cases of plague, both in California, have been reported this year."

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## BLOOD PLASMA BANK

About 80 flasks of 250 cc of blood plasma are today stored at the City & County Emergency Hospital in Honolulu to be held in reserve for use in case of disaster.

Inadequate as this quantity would be in the face of any great emergency, a very good beginning has been made by the Public Health Committee of the Chamber of Commerce in initiating this project. Its appropriation of \$3,500 several months ago was used to purchase the necessary laboratory equipment and pay personnel for a central blood plasma bank in Honolulu. The original aim was to bank 100 flasks of 500 cc each, or 200 flasks of 250 cc each.

The plasma will be kept on deposit at the headquarters of the central blood plasma bank at the Emergency Hospital and will not be used except in a declared emergency. Dr. J. W. Deveraux was asked by the Chamber of Commerce to establish the bank and to do the bleeding. Mrs. W. B. Herter has been in charge of the laboratory work, assisted by Mrs. Cross.

Part of the appropriation has also gone into the purchase of centrifuge heads and other equipment to be loaned to the eight hospitals on the island of Oahu to make it possible for them to make and store their own plasma.

The public has given fine cooperation so far in donating blood and the doctors could be very helpful by encouraging patients who are interested to give their blood.



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# Commerce in Health

FORREST J. PINKERTON, M.D.

Chairman, Public Health Committee  
Chamber of Commerce of Honolulu

Honolulu's shippers voted themselves into the business of public health way back at the turn of the century, because they saw a direct tie-up between their work and the health of the community.

Commerce was vital to progress, yet steamers were entering port laden not only with merchandise but also with such undesirable cargoes as rats and ferns. The federal government had some facilities for quarantine and fumigation, but the plague epidemic of 1901 proved that these facilities were not adequate.

Then, said the shippers, each of us who receives merchandise is responsible. We will accept that responsibility in direct proportion to the amount of merchandise we receive and pay a health insurance premium on our cargoes. This premium is the voluntary tonnage charge, paid continuously since November 1901.

Originally an independent committee appointed by the shippers themselves collected the public health funds and expended them on wharf repairs and fumigation, and through regular appropriations to the Board of Health for salaries of additional inspectors. Then in 1907, another outbreak of plague extended the scope of the work to active suppression of the epidemic and to rat control.

As commerce to the islands flourished, the health premiums on cargoes increased and the shippers made funds available in other fields of epidemic prevention. Mosquito control followed rat control efforts, with more encouraging results. Today the Public Health Committee's rat and mosquito control squad combines the two jobs.

Visiting nursing service in homes was early recognized as an extremely valuable tool in education for health,

and a goodly share of each year's income has, since 1911, gone to Palama Settlement, earmarked for this one phase of community health work.

Funds were allocated to Leahi Home as early as 1913 and continued through 1923. Then in 1937, additional funds were made available to bring to Hawaii a national authority on tuberculosis, to survey the problem created by this disease in Honolulu and give constructive suggestions for its control.

But our story is running away with us and we must go back and pick up the threads as they relate to administration of the funds.

In 1914, according to history in the files, the shippers' committee voted to disband, turning their functions over to the Chamber of Commerce of Honolulu. The reserve funds held in a bank savings account were placed in trust, and the voluntary tonnage charges have since been expended by the Chamber's Public Health Committee.

For the next several years, the funds were expended on the two projects the shipper's committee had been sponsoring when it disbanded—the nursing service and Leahi Home. In 1918 the quarantine wharves received an appropriation, and the sum of \$300 was set aside for a leper settlement survey. Six years later foot and mouth disease broke out, and around \$900 was spent on its suppression.

As time went on, and mosquito control campaigns were re-inaugurated, and battles were waged against diphtheria, cancer, and syphilis.

Because the funds were collected for prevention as well as cure, education became the keynote of the committee's undertakings. Early in 1935, Dr. Ira V. Hiscock of Yale University was invited to visit Honolulu and make a



general health survey. His constructive criticisms, published in full, led to a new sanitary code for the city and served as a basis for further health education plans. From that time on the committee steadily broadened the scope of its work to include conservation of sight and hearing, surveys of and a clinic for mental health, and participation in health contests, exhibits, and conferences.

The most recent projects undertaken have been a study of possible ocean contamination by the present sewage disposal system, a laboratory to investigate the cause of parasitic diseases of man, and an emergency blood plasma bank.

In 1939, the committee organized the Oahu Health Council, which now numbers around 125 members, representing more than sixty social, welfare, health, business and professional organizations. This body is primarily an advisor to the Public Health Committee, serving to bring to light health problem that require urgent attention.

The Public Health Committee enjoys a unique status in its field of work. It has available funds and it is not hampered by red tape in their expenditure. It can serve as a proving ground for new ideas, and it can meet unusual situations with no waste of time. It serves the community as a whole and not particular groups or interests.

This service, designed to protect the health and save the lives of poor and rich, residents and visitors, is the gift of Honolulu's business men. Every man and every organization that receives a consignment of merchandise voluntarily contributes to our good health.

### DENTAL RADIOLOGY

The Territorial Dental Society extends an invitation to the physicians to attend two lectures on dental radiology to be given at 1:30 p.m., October 24 and 25, in the auditorium of the Mabel L. Smyth Building, by Gordon M. Fitzgerald, DDS., head of the Dental X-ray Department of the College of Dentistry, University of California Medical Center, San Francisco, California. These lectures will cover the newer technique of dental radiology. There will be no charge.

The Dental Society is having its annual meeting in the Mabel Smyth Building—a two day session, Friday and Saturday, October 24, 25, which will be followed by a post graduate course during the following week.

### ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY MEETS IN CHICAGO OCTOBER 19-23, 1941

The forty-sixth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at the Palmer House, Chicago, October 19-23, under the presidency of Dr. Frank R. Spencer, Boulder, Colo.

The academy's program consists of one general scientific meeting on the morning of the first day, separate programs for the two specialties on alternate afternoons and instructional courses every morning beginning on Tuesday.

The feature of this year's general opening meeting will be a symposium on vertigo, with Lr. Francis H. Adler, Philadelphia, representing ophthalmology; Dr. William J. McNally, Montreal, otolaryngology, and Dr. Bernard Alpers, Philadelphia, neurology.

During the convention there will be various meetings of small groups, including the "Teachers' Section," secretaries of local eye, ear, nose and throat societies and alumni organizations. The meeting of the teachers' section will be concerned especially with the role of the Academy in national defense during the present emergency. There will also be a scientific exhibit that will include such subjects as "Ocular Conditions in Children Due to Systemic Disease," "Conduction of Sound in the Ear," "Hemophilia and Other Blood Dyscrasias as Manifest in the Eye, Ear, Nose and Throat," "Cancer of the "Larynx" and "Significance of the Eyegrounds in the Problem of Hypertension."

Alternating with the scientific programs of the specialties each afternoon will be an elaborate motion picture program. Thus when the section of ophthalmology is meeting for formal presentation of papers, motion pictures on otolaryngology will be available for those interested in that field.

### ST. FRANCIS HOSPITAL Building Drive

The St. Francis Hospital Fund is slowly progressing toward its goal. \$100,000 in cash is actually on hand of which the doctors of the community gave \$4,154.00 to date. Dr. Robert Kimura raised the funds from the Japanese doctors, Dr. Fred Lam from the Chinese doctors and Dr. Louis Gaspar from the haole doctors.

# COUNTY SOCIETY REPORTS

## OFFICERS AND MEETINGS

<i>County Society</i>	<i>President</i>	<i>Secretary</i>	<i>Date of Meeting</i>
Hawaii County	W. N. Bergin	E. Tompkins	First Tuesday
Honolulu County	L. A. R. Gaspar	A. W. Duryea	First Friday
Kauai County	B. O. Wade	A. W. Boyden	Second Wednesday
Maui County	T. W. Cowan	Emory Anderson	Second Monday

### KAUAI COUNTY MEDICAL SOCIETY:

The meetings of the Kauai Society in recent months have been turned over successively to our lecturers, Dr. M. A. Blankenhorn of Cincinnati, Dr. Charles F. McKhann of Ann Arbor and Dr. Edward Compere of Chicago. Our August meeting was advanced a week to make it possible to have our old friend Dr. Emge present. This is the second summer Dr. Emge and his family have spent a vacation on our island.

The Kauai Society at their April meeting decided not to be an outside member of, nor to contribute to, the Honolulu County Library, preferring to build up a cooperative library among the doctors of this island.

Webster Boyden, M.D. reporting.

### MAUI COUNTY MEDICAL SOCIETY:

Dr. Kusunoki of the Board of Health presented at the June meeting a very timely and excellent paper on typhoid and typhoid-carriers, arousing much interest and praise for his valuable suggestions.

Drs. Burden and Izumi gave a report of the annual meeting of the House of Delegates. Of most concern was the matter of fairer and more efficient consideration of outside island societies in arranging guest lecturers to visit these societies. It was agreed that Dr. Gordon, Program Chairman of the Honolulu Society, would take the matter up, contemplating a Territorial Program Committee on which the outside island societies would be represented.

Dr. McArthur, in discussing this matter and other problems such as society contributions to the Adams Medical Library, in the Mabel Smyth Building, responsibility for delegate's traveling expenses, etc., emphasized the need for our society to develop and recognize certain policies in its relationship with the Territorial Association.

A committee composed of Drs. K. Izumi, R. J. McArthur, Emory Anderson, and H. Izumi, Chairman, were appointed to draft such policies.

The month of July will be memorable in the annals of the society for the visits of Dr. Compere and Dr. McKhann. Their talks were enjoyed by all as was evidenced by the unprecedented attendance. It should also be noted that it was our good fortune in May to have Dr. M. A. Blankenhorn as our guest speaker.

Our society is particularly grateful for the opportunity of having these men come to our island to bring us the latest in their fields of work. It was unfortunate that Dr. McKhann was ill during his visit, but we were all particularly impressed by his heroic efforts in carrying out his program despite his very disabling illness.

The Medical Preparedness Program for Maui has been organized under the leadership of Dr. J. A. Burden, and while no definite rehearsal of emergency activities has been practiced, the foundation for this has been started.

Emory Anderson, M.D., reporting.

### HAWAII COUNTY MEDICAL SOCIETY:

The 197th regular meeting was called to order Tuesday evening, August 5, 1941 by Dr. Bergin at the Hilo Memorial Hospital.

Dr. Keay gave a report of the Preparedness Committee. He stated that the meeting on July 12th with Dr. Faus and Colonel Smoot had covered general topics. The second meeting on July 28th referred to the training of volunteers and the procuring of litters and Thomas splints.

The date of the annual meeting was voted to be the first Saturday in March, so that a list of new officers and delegates could be sent to the Territorial Association in ample time before their annual meeting. This change causes the semi-annual meeting to be moved up into September.



To date no invitations from any of the outlying districts had been received for this meeting.

It was thought desirable to have made a transcript of the lectures given by visiting doctors so that physicians in outlying districts unable to attend may have a copy. Dr. Loo's kind offer to act as the medical secretary was accepted. The lectures will be mimeographed and made available to the members at cost.

It was decided that the minutes of the meetings be sent to all absent members.

The handling of venereal disease in Hilo was discussed. With the increase in new cases of syphilis and gonorrhea and with more service men coming to the island it was thought a good time to revise the system of control. The very effective plan in effect in Honolulu was presented and Dr. R. Arimizu was appointed to confer with Board of Health officials to formulate a plan of control to be presented at the next meeting.

Dr. Bergin reported on his recent trip and visits to clinics at Tulane and Cook County. He gave a report of several new treatments and ideas now being tried out, among which are new ideas in chemotherapy with the "sulfa" products; the use of zinc peroxide in compound fractures and in varicose ulcers; the use of the Miller-Abbot tube which has greatly decreased the mortality in intestinal obstruction; the free use of plasma in operative cases, sometimes as much as 500 cc; the increased use of adrenal cortical hormone in these operative cases; the use of oxygen inhalation for a half-hour or an hour in migraine; the five-day treatment for syphilis, producing some very good results with only occasional side reactions; the release on July 1st by two drug houses of stilbestrol, a synthetic estrogen product which is proving more effective taken orally than any similar products available to date.

During the month of July the Hawaii County Medical Society had a very intensive period of post graduate instruction. Dr. Edward Compere, professor of orthopedic surgery at Rush Medical College, gave a series of lectures, as follows:

July 5—The Surgical Treatment of Tuberculosis of Bones and Joints.

July 7—Treatment of Fractures in Children.

July 8—Treatment of Osteomyelitis (afternoon meeting).

Recent Advances in the Treatment of Poliomyelitis and movies of Restorative Surgery (dinner meeting).

Dr. Charles F. McKhann, professor of pediatrics at the University of Michigan, gave a series of lectures as follows:

July 16—Upper Respiratory Diseases in Children (afternoon).

The Care of the Premature Infant (evening).

July 17—A question box program aimed at a discussion of problems in the growth and development of children (afternoon).

A discussion of diarrheas in children (dinner meeting).

Our Post-Graduate committee, with Dr. Edmund Tompkins as chairman, made all the arrangements for these meetings. The attendance at every meeting for both lecturers was very good. We are finding that the dinner meetings are most satisfactory, especially for the men in the outlying districts. The Board of Health was responsible for bringing out both of these lecturers; this service is of real benefit to every physician who attends the meetings, and of course, indirectly, to the community. Nurses were invited, and attended two lectures by each visiting speaker.

Our Society feels that by bringing lecturers to the islands the Board of Health is doing an excellent service. The men are fine and have given us very worth while lectures at little expense to us. We certainly want to encourage such a service by the Board of Health and consequently make these few suggestions with the idea of making the lectures more worth while and better attended. The first suggestion is that the Board of Health officers responsible for arranging the trips should always keep in touch with the Post-graduate Committee of the Territorial Medical Association and plan these trips together. This in turn would mean that the members of this committee on all the Islands would know just what all plans are. In the case of the recent lecturers, Dr. McKhann's visit was brought to the attention of the Hawaii County Medical Society months in advance, but Dr. Compere, who arrived here before Dr. McKhann, was not announced to us until two weeks or less before his arrival. This brings up the other suggestion. More good would be done and a better turn-out of men would result if it was planned to have no two men in the same month. Over here some of our men drive three hours to attend lectures and naturally cannot do this many times during the month. For this reason we usually plan a late afternoon meeting and a dinner meeting following. If the men must come during the same month they should come together and have a symposium, each presenting his side of a given subject. This would probably give

a better turn-out and be very interesting but the total amount of instruction would of course be less. These suggestions are given for what they are worth and solely with the hope of improving what is already a good post-graduate service.

H. M. Patterson, M.D., reporting.

### **HONOLULU COUNTY MEDICAL SOCIETY:** Summary of activities since April)

**Scientific Meetings:** An interesting evening meeting was held at the Naval Hospital in June, the members of the society being guests of Captain Hayden and his staff. 46 doctors attended from the society and a like number of medical officers from the Army and Navy.

The program included excellent papers on:

The Pathology and Management of Abnormal Uterine Bleeding—Lt. Comdr. A. T. Walker, discussion by Dr. Guy C. Milnor.

A Practical Localizer for Intra-ocular Foreign Bodies—Lt. O. W. Chenault.

A Discussion of Brodie's Abscess with Presentation of Three Cases—Lt. J. D. MacPherson.

The Treatment of Compressed Air Illness—Lt. O. D. Yarbrough.

Selective Recruiting Role of the Navy Medical Officer.

The meeting in July was turned over to Dr. Charles F. McKhann, Professor of Pediatrics, University of Michigan, and there was an excellent turnout to hear his lecture on Gastro-intestinal Symptoms in Children.

The August meeting, attended by 75 doctors, heard a case report by Dr. Vasconcelles, on biliary dyskinesia; a lecture by Dr. T. H. Althausen, Associate Professor of Medicine, University of California Medical School, on Functional Disorders of the Gall Bladder, and a report by Dr. Pinkerton of the House of Delegates meetings at the A.M.A. convention in Cleveland.

The September meeting was an interesting one, with the recital by Dr. Thos. Fujiwara of a case of fever of unknown origin, followed by active discussion. Dr. Pinkerton obtained the approval of the society to have its Preparedness Committee request the Public Health Committee of the Chamber of Commerce to make a motion picture on first-aid to be used for training medical aid units. This would afford a tremendous saving of time for the doctors who have been giving two evenings a week to such training in the last months. It will also be a great aid in standardizing procedure and instruction.

Dr. Fronk outlined the prehabilitation program to be initiated for selectees and secured approval for fees based on the HMSA fee schedule for this purpose. Dr. Fennel gave a brief report of a visit with Dr. N. E. Wayson, who is now in charge of the Plague Investigation Laboratories of the U.S. Public Health Service, and warned the doctors of Hawaii to be ever vigilant in their search for plague infested rats. The substance of his remarks appears elsewhere in this issue.

**The Surgical Section** of the Society meets regularly every other month on the second Friday, under the leadership of Dr. J. E. Strode. This section was revived only last September and is well on the way to becoming an important part of the Society's activities. Some of the papers given will be published in subsequent issues of *THE JOURNAL*—Urinary Calculi by R. O. Brown, Kidney Injuries by P. S. Irwin; Observations in Mainland Gynecological and Obstetrical Clinics by Paul Wiig, and The Management of Burns by F. J. Halford.

**Industrial Accident Fee Schedule:** Upon the request of the Board of Governors, the Workmen's Compensation Committee, enlarged to seven members, met to consider whether the fee schedule should be opened up for revision. Before coming to a decision, a questionnaire was circulated to all members requesting suggestions for changes and asking for an expression to the following:

Do you believe that taken as a whole the present Industrial Fee Schedule gives a fair return to the doctor rendering industrial accident services and that it should be continued without major revision, or

Do you think a sufficient number of items need revision to warrant opening up the issue with the insurance companies and industrial firms?

This was sent with the caution that "If this questionnaire is not returned by Thursday, August 14th, it is assumed that you favor no change in the present fee schedule"

Some 25 blanks with suggestions for change were submitted for the committee's consideration when it met on August 15th. Since by negative report and lack of report it appeared that the society was overwhelmingly in favor of no revision, the Committee decided not to make any revisions unless the insurance companies have raised their premiums to industrial



firms, in which case a blanket increase throughout the schedule seems indicated.

**Contract Practice.** The matter of the Consolidated Amusement Company is still under investigation by the Committee on Forms of Medical Practice, a hearing having recently been held at which Dr. Alsop denied any arrangement for medical service to the company's employees, except on a fee-for-service basis.

The Aiea medical plan experiment has been reported to the Society as being terminated with the "call to arms" of Dr. Thompson.

On the Underground Fuel Storage arrangement with the Honolulu Plantation Company, operating the Aiea Hospital, under which workers may by payroll deduction of \$1.50 monthly receive complete medical, surgical and hospital care for non-industrial sickness, Dr. Thompson testifies that this is an arrangement in which he has no part. Written evidence, however, indicates that there is a plan in operation. This matter is being further investigated.

**Dues and Assessments.** Since several of the doctors have been called into active service, the question of changing them over to Service Membership status has repeatedly been raised. The Board felt that a definite policy should be established to cover these cases, as well as assessments to Service Members, and Army and Navy doctors, as follows:

**Re: members called to active duty:**

All members of record at the beginning of the fiscal year, namely May 1, 1941, are required to pay the regular dues and assessments for the year. At the end of the fiscal year, April 30, 1942, all regular members in active service will be so recognized and be declared exempt from the payment of all dues and assessments for the duration of their service, with the exception that those who are engaged in part-time private practice will be assessed for the full amount of dues and assessments as are regular members.

(See under "Post Graduate" heading in this county report the ruling regarding Post Graduate assessment of Service Members, Army and Navy doctors.)

**By-Laws.** Now that the Territorial Association by-laws have been revised, the Honolulu County will begin its study of changes which time and use have indicated to be necessary and to bring about conformity with the Territorial by-laws.

**Hawaii Medical Service Association:** Numerous meetings were necessary to iron out details of the new contract signed on June 30th. The plan will continue under the same terms as last year. Although several adjustments were

indicated, it was felt no changes should be made until two years of operation had been completed on which to base statistics. The only difficulty in coming to a new agreement with the HMSA was the request for a further extension of time to bring the membership of the teacher and social worker groups up to the required 75%. Your Board, having recognized the possible difficulty of these groups meeting this requirement, had in the first contract given the six months in which to do this. Their request at the end of six months for an extension was granted, followed by another indefinite extension. In the interest of the plan it was felt that no further extensions could be allowed, except for the compromise that groups of less than 75% be suspended for six months from the payment of dues and the receipt of benefits, with automatic reinstatement if the group brings its membership up to 75% within that period.

**Preparedness Program.** Seven doctors were elected by popular vote at a regular meeting of the society to guide the medical preparedness activities, viz: H. L. Arnold, J. E. Strode, R. B. Faus, Nils P. Larsen, Paul Withington, F. J. Pinkerton, James F. Judd.

In response to a request from the Preparedness Committee the Board of Governors expressed itself in favor of the proposed mass immunization campaign against small pox, tetanus and typhoid, but it did not favor that such immunization be done at the aid stations free of charge. Upon request, fees were recommended as follows:

Small pox vaccination	\$3.00
Tetanus series (2)	5.00
Typhoid series (3)	5.00

Dr. Arnold reported to the Board of Governors the following change in set-up of the Preparedness Committee, which change is acceptable to the Board:

A change in the set-up has just occurred which I feel is important enough for me to make a report of to the Society in general. It is this: It has been the feeling of the committee for some time past, that now that the training period was approaching its end, it was highly desirable that the question of who was to command these units and the ambulance service during any emergency should be definitely fixed. There was obviously question in the mind of many people as to whether Dr. Mossman, myself or Dr. Faus was actually the commanding officer. The solution decided upon by the Mayor was that I should be appointed a member of the Major Disaster Council of the City in charge of first aid units and ambulance service. The setup of the Disaster Council is such that each chairman of a section is expected to appoint an alternate who may attend to his duties when, for any reason, he is absent and that he may appoint a committee to act as advisors on mat-



ters which come up affecting his department. I have appointed Dr. Robert Faus as my alternate on the Council and have appointed the members of the Preparedness Committee of the Honolulu County Medical Society as my advisors. I agree that neither Dr. Faus nor I will make any decision of importance about which we consider there can be the slightest doubt as to the proper course of action to pursue, without consulting the committee.

It is also our intention that assignments to various duties as now made among the committee members shall remain as they are. That is to say, Dr. Benyas shall remain in charge of training, Dr. Strode and Dr. Judd in charge of surgical teams, etc. The justification for this change which is really a change of form more than of substance is that under many circumstances it is impossible for a committee to exercise command. In the last analysis one man must be responsible. This change in the set-up makes that easily possible and yet retains the advantages of having the advice of those men whom the Society selected as best qualified to make these decisions, available to those men who are in charge of operations.

**Prehabilitation.** Dr. Fronk, Director of Selective Service, requested and received permission from the membership at the meeting in September to use a fee schedule based on the Hawaii Medical Service Association fee schedule for medical services in the prehabilitation of draft registrants. Notices went out to all members to the effect that registrants requiring medical services under this plan will be instructed to go to their private physicians and that charges for services should be made to the registrant on the basis of the HMSA fee schedule according to the individual's income bracket.

**Post Graduate Section (a) Assessment.** The membership having agreed, at the annual meeting in April, to the recommendation of the Post-Graduate Committee to assess all members a set sum per year to cover lecture costs (instead of as formerly to have only those who attend a given series carry the cost of bringing down the lecturer), the Board of Governors set this assessment at \$10 per year. Every member on record as of April 1, 1941, received assessment notice. It is a charge required to be paid the same as the yearly dues.

**(b) Assessment—Service Members, Army and Navy Doctors.** It has been the custom in the past to require payment from Army and Navy doctors for post graduate courses, the same as regular and service members. The picture changes, however, with the introduction of a yearly post graduate assessment, and several problems immediately arise. A naval reserve officer who is a member in good standing with his medical society elsewhere and who would not be expected to transfer his membership to Hawaii on his uncertain and temporary status, the Board felt

should be made welcome by the society and admitted as a guest to our lectures. How then would you draw the distinction between him and the naval officer on regular duty? If you admit him also as a guest, what about the naval officer who was interested enough to take out a service membership with our society? The Board therefore passed the following ruling treating them all alike:

That Service Members and medical officers on active duty during the emergency be allowed to attend lectures given by the society without the payment of post graduate assessment (except as this conflicts with the general ruling made as to dues and assessments for regular members drawn into active service, as stated under the heading **Dues and Assessments** earlier in this county report).

**(c) Gifts to lecturers.** In view of the curtailed finances of the society, due to many doctors' being called to active service, the custom of making gifts to lecturers will be discontinued where the lecturer receives payment from any source for his visit to Hawaii.

**(d) Program.** Your P. G. Committee has already made contact with outstanding men in the fields of traumatic and war surgery, and physiology, and hopes to have a lecturer for the spring session lined up before the end of the year. It has also been in touch with the state societies on the west coast suggesting an arrangement whereby their lecturers may come to Hawaii. This would eliminate some of the traveling expense and perhaps make it possible to have two lecturers instead of one for the year.

Already this year a broad program has been provided which the doctors have enjoyed under comfortable conditions in the new air-conditioned auditorium of the Mabel Smyth Building.

Dr. Marion A. Blankenhorn, Director of the Department of Internal Medicine, University of Cincinnati, came to us under arrangements made by last year's committee to give a course in April, as follows:

Hypertension  
Congestive Failure  
Medical Shock  
Edema  
Atypical Pneumonia  
Dyspnea and Cyanosis  
Anuria and Albuminuria  
Subacute Bacterial Endocarditis.

90 doctors, including several interns, signed up for the course. Dr. Blankenhorn was also guest speaker at the annual meeting of the Territorial

Association at which he covered the topics Specific Treatment of Pneumonia and Diagnosis and Treatment of Gastro-Enteric Bleeding.

With all this schedule, including visits to the outside islands, lecturing there also, Dr. Blankenhorn was kind enough to give over an evening to lecture to the public. He was very much interested in our efforts at public education and would have welcomed an opportunity to have come better prepared for that purpose. He was full of admiration for our building and library and as a token of his interest presented the library with a 3 volume set of Barr's General Therapy.

At the end of June Dr. Edward L. Compere, orthopedic surgeon from the University of Chicago, came to us by courtesy of the Bureau of Crippled Children of the Board of Health, lecturing on

Acute Anterior Poliomyelitis  
Osteomyelitis  
Congenital Deformities  
Tuberculosis of the Spine  
Treatment of Fractures  
Surgical Treatment of Tuberculosis in Children.

He was immediately followed by Dr. Charles F. McKhann, Professor of Pediatrics of the University of Michigan, who lectured on

Tuberculosis in Children  
Premature and New Born  
Respiratory Diseases  
Endocrines

His visit to the Territory was made possible through the Maternal and Child Health Bureau of the Board of Health, and the society is indeed grateful to the Board of Health for the opportunity of hearing these excellent teachers. Both series of lectures were open to nurses as well as doctors and there was a record attendance even on Saturday afternoon.

Through arrangements of our Post Graduate Committee, Dr. Theodore L. Althausen, Associate Professor of Medicine of the University of California Medical School, and visiting professor at the summer school of the University of Hawaii, brought to a most appreciative audience lectures on

Functional Disturbances of the Gall Bladder  
Medical and Pre-Operative Treatment of Chronic Cholecystitis  
Diagnostic and Therapeutic Management of Jaundice.  
Treatment of Functional Digestive Diseases, including a simplified psychiatric approach.

Not all of these lectures were completely recorded, but such as we can get an accurate transcript of will appear in subsequent issues of the JOURNAL under the special heading post graduate notes. All of Dr. Althausen's lectures will be available.

Industrial Exposition. We will participate again this year, along with several other health agencies, in the Hawaiian Industrial Exposition, September 27 to October 5th. The health booth will be limited entirely to educational films, this having proved the most popular feature of last year's exhibit. The new sound and color film on rats just completed by the Rat Control Committee of the Chamber of Commerce will be the special feature. Lanikila, a colored sound film on tuberculosis, a film on cancer, and one on venereal disease will complete the program.

**St. Francis Hospital Drive.** Endorsement was given to the St. Francis drive and letter was sent to all members requesting their kokua.

**Motion Picture Projector.** In July the donations of Dr. Middleton of Wisconsin and Dr. Ravdin of Philadelphia of \$100.00 each for projection apparatus were turned over to the Mabel Smyth Building to apply toward the purchase of an Ampro motion picture projector costing \$1200. Such a machine was constantly being called for in the building for showings to the medical men in connection with the defense program and for educational programs to the public. Subsequently the Public Health Committee of the Chamber of Commerce has underwritten the entire cost of the projector in the interest of the medical defense program and epidemic control education, and the \$200 will be returned to the society to be used for the purchase of a slide projector to replace the inadequate one which the society has been using for years.

A. W. Duryea, M.D. reporting.

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- ☐ Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245—  
"Pharmacology of Inflammation: III. Influence of Hy-  
groscopic Agents on Irritation From Cigarette Smoke."  
☐ N. Y. State Jour. Med. 1935, 35-No. 11,590—  
"Irritating Properties of Cigarette Smoke as Influenced  
by Hygroscopic Agents."

- ☐ Laryngoscope, 1935, XLV, No. 2, 149-154—"Some  
Clinical Observations on the Influence of Certain  
Hygroscopic Agents in Cigarettes."  
☐ Laryngoscope, 1937, XLVII, 58-60—"Further Clinical  
Observations on the Influence of Hygroscopic Agents  
in Cigarettes."

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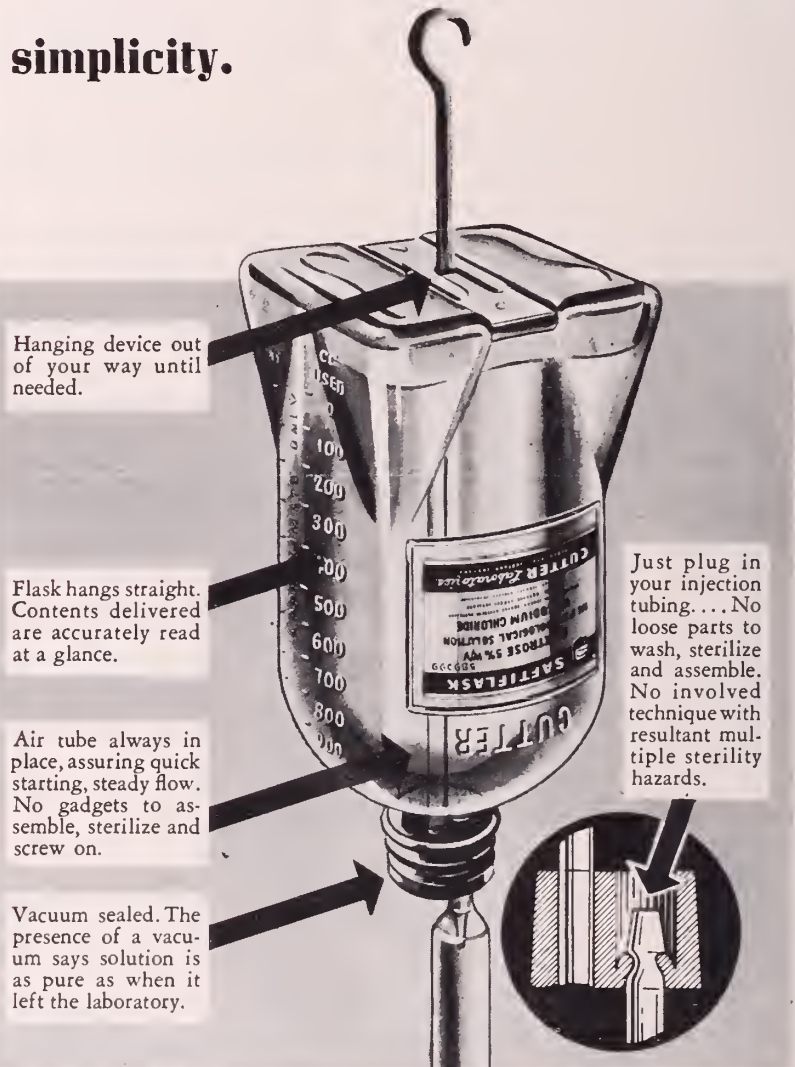
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# NOTES AND NEWS

## OUR COVER

The line drawing on the cover of The Journal is not merely an artistic effort. It is a tracing from a photograph of the main entrance of the new Mabel L. Smyth Memorial Building, the Association's headquarters. This was chosen from a number of photographs taken by Otto Matsumoto, photographer of the Queen's Hospital.

The design above the doorway is composed of two elements: the Aesculapian staff with a single serpent entwined about it which properly symbolizes Medicine and the leaves of the *ape*, or giant elephant-ear plant, which may be taken to symbolize the sub-tropics. The same leaves appear along the balustrade in front of the doorway.

The particular arrangement of staff and serpent was borrowed from the Coat of Arms of the United States Army Medical Corps. The general arrangement of the page was inspired in large measure by the cover design of the Pennsylvania Medical Journal. The type in which the name of The Journal is set is Huxley Vertical.

## JOURNAL POLICIES

Since it worked out so successfully last year with the Bulletin, it is planned that each county society be responsible for one issue of the Journal this year. The issue for November will be arranged for by the Honolulu County to give the editors on the other islands plenty of time to prepare for their issues which will fall as follows:

Hawaii County-January issue.

Maui County-March issue.

Kauai County-May issue.

The associate editor of each island-Dr. H. M. Patterson for Hawaii; J. Alfred Burden for Maui and Sam Wallis for Kauai-will be responsible for planning his county society's number. Articles and news items from his county should be submitted to him for acceptance not later than the 15th day of the month preceeding publication. This does not restrict anyone, however, from any of the other islands from sending to the office of the Journal in Honolulu material and suggestions at any time.

Local news of possible interest to the medical profession, changes in address, notices of births, deaths and weddings will be gratefully received.

## NEW MEMBERS

Reported Since April

- TILDEN, I. L.—Transferred from Maui County. Univ. of Nebraska 1935. Pathology. The Clinic, Honolulu.
- DICKSON, H. S.—Transferred from Hawaii County. Dalhousie, 1921. Private practice. 1118 Pensacola St. and 111 Dillingham Blvd.
- TESSMER, CARL F.—Service Member. Univ. Pittsburg 1935. Pathology. Schofield Barracks, Oahu.
- CUSHNIE, EDWARD F.: — Loyola Univ. 1939. General. The Clinic, Honolulu.
- NATSUI, DOROTHY S.—Loyola Univ. 1935. Psychiatry. Territorial Hospital, Kaneohe, Oahu.
- SIBLEY, W. S.—Service Member. Univ. Michigan 1936. U. S. Public Health Service, Federal Bldg., Honolulu.
- WAITE, VERNE C.—Service Member. Univ. Michigan 1939, U. S. Public Health Service, Federal Bldg. Honolulu.
- WALKER, ALBERT T.—Service Member, Univ. California 1922. Ob. Gyn. U. S. Navy, Naval Dispensary, Honolulu.
- MIYASAKI, SEICHI — Northwestern 1931. General practice. Waialua, Oahu.
- TAMURA, THOMAS—Yale 1922. General practice. Wai-pahu, Oahu.
- BENNETT, JOHN TERRELL—Service Member. Jefferson 1914. Internal Medicine. U. S. Navy, Naval Hospital, Pearl Harbor.
- POTTER, JAMES E.—Service Member. Vanderbilt 1914. Urology. U. S. Navy. Naval Hospital, Pearl Harbor.
- KURAMOTO, MITSUO—Northwestern 1939. General practice. 455 N. Kuakini St., Honolulu.
- OZAWA, WALTER M. — Ohio State 1939. Territorial Hospital, Kaneohe, Oahu.
- GILES, FREDERICK L.—Transferred from Kauai County Indiana 1934. Internal Medicine. Medical Group, Honolulu.
- RICHERT, THOMAS H.—Transferred from Kauai. McGill 1938. General practice. Fronk-Wynn Clinic, Honolulu.
- NISHIJIMA, SATORU—Jefferson 1938. General practice. 53 S. Kukui St., Honolulu.
- CHILDS, EDGAR S.:—Yale 1935. Diseases of the Chest. Leahi Home, Honolulu
- DEPP, DONALD S.—Univ. Oregon 1939. St. Francis Hospital.
- CHOU, ELLEN F. LEONG—Rush 1925. Ob. Gyn. 1464 Emma St., Honolulu.
- CHOU, T. P.—Huan-Yale Med. Col. 1922. E. E. N. T. 1464 Emma St.
- KATSUKI, DAVID I.—No. Dakota 1928. Obs. Gyn. 1515 Nuuanu St. and Emergency Hospital.
- SEELEY, F. L. J.—California 1931. Psychiatry, U. S. Navy. Naval Hospital, Pearl Harbor.
- MERMOD, LEON E.—Transfer from California. Stanford 1932. Waipahu, Oahu.

# Hawaii Medical Service Association

## BALANCE SHEET

As of May 31, 1941

### ASSETS

#### Current Assets

Cash on Hand and with Depositories .....	\$22,417.09	
Cash deposited with Territorial Treasurer.....	3,500.00	
Accrued Interest Receivable, etc.....	144.83	
Dues Receivable.....	2,002.78	\$28,064.70

#### Fixed Assets

Office Furniture and Fixtures.....	\$ 1,849.00	
Less Reserve for Depreciation.....	247.52	1,601.48
		<u>\$29,666.18</u>

### LIABILITIES AND SURPLUS

#### Current Liabilities

Provision for Medical Care not Billed.....	\$ 4,400.00	
Accrued Taxes Payable, etc.....	228.05	\$ 4,628.05

Prepaid Dues.....		1,101.55
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Physicians' Reserve Fund.....		6,148.89
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#### Surplus

Both Contributed and Arising from Operations.....	17,787.69	
		<u>\$29,666.18</u>

The Physicians' Reserve Fund represents a withholding of part of the physicians' charges and is eventually payable to them if no losses arise. This reserve is increasing each month.

A non-profit organization providing doctor and hospital care to low and middle income groups.

This service is made possible by the participation of the Honolulu County Medical Society.

"Certification of audit by Tennent & Greaney, Certified Public Accountants, is on file covering the above balance sheet and related operating statement."

For further information, write the Honolulu County Medical Society.



DR. KENNETH AMLIN, who is associated with Dr. B. O. WADE at Waimea, Kauai, returned August 1st from the mainland, where he spent three months at the New York Polyclinic studying ear, eye, nose and throat. Dr. Amlin does not expect to specialize in this field but hopes to improve the care of the plantation personnel. After his studies he motored through the Pacific Northwest.

DR. N. M. BENYAS has gone off to the mainland with the football team. His itinerary includes Portland, Stockton, Denver, Chicago, New York and Boston.

DR. WILLIAM WINTER has just returned from 6 weeks on Palmyra. He says it's a beautiful group of 80 islands covered with palms. It never stops raining, and it is hot, but he loved it.

DR. ARCHIE ORENSTEIN was away on the mainland spending two months at rest and study on the East Coast. DR. IVAR LARSEN took over during his absence.

DR. A. C. ROTHROCK has returned from a short trip to the mainland.

DR. R. J. McARTHUR had a two weeks' vacation trip which included Honolulu and Kona. It is rumored that Jiggs caught some pretty big fish at Kona. The center of interest in the McArthur home these days is "Johnnie", the newly adopted son who is reputed to be "quite a feller".

DR. THOMAS COWAN made a combined business and vacation trip to the mainland for two months. While there he passed examinations of the American Board of Ophthalmology.

DR. HAROLD MOFFAT returned from the Coast recently with his family. While there he took and passed the American Board of Ophthalmology examinations.

DR. JAMES FLEMING took over the work in the Haiku District, vacated by Dr. ST. SURE, SR. who left for the mainland.

An anesthetist at the Puunene Hospital for the first time in history! Name unknown at this writing, but she comes from Pahala on Hawaii.

DR. L. CLAGGET BECK, formerly Asst. Physician at Koloa and McBryde Plantations in 1939-40, returned to Kauai to replace Dr. Thomas H. Richert who left on July 1st for Honolulu. Dr. Beck is a graduate of Princeton, 1931, and Johns Hopkins, 1935. He interned and had an Assistant Residency at Union Memorial Hospital, Baltimore, 1935-36. In 1937-39 he was municipal physician at St. Croix in the Virgin Islands. After leaving Kauai in 1940 he spent one year in Baltimore as a dispensary physician for Johns Hopkins. He returns to Kauai to work for the Hawaiian Canneries, Ltd. and the Kealia division of the Lihue Plantation Company.

DR. WILLIAM M. SHANAHAN of Milwaukee, Wisconsin, has come to the Mental Health Clinic at Queen's Hospital to be Assistant Psychiatrist. Dr. Shanahan comes from the Boston State Hospital and trained under Dr. FRANKLIN G. EBAUGH at Denver.

DR. DAVID MORGAN, Resident Psychiatrist at the dency to take up work at the Colorado Hospital with Mental Health Clinic, left at the end of his year's resi-Dr. Ebaugh. No one so far has been engaged to fill his place.

DR. D. L. BURLINGAME of Hakalau is now on the mainland, visiting various clinics.

DR. R. L. TREADWELL of Kohala is on leave for four months on the mainland. He will study in West Coast clinics principally.

Many changes in the Nursing Staff of the Wilcox Memorial Hospital, Lihue, Kauai, have recently been made. MISS ANNA GRACE WILLIAMS, who had charge

of the opening and organization of the hospital, resigned and has been replaced by ESTELLE M. ANNESSER, formerly operating room supervisor at Queen's Hospital.

EDITH KOSKEY, Supervisor of Nurses, also resigned to return to her home on the mainland.

DR. W. N. BERGIN of Laupahoehoe, just returned from a four months' course of study in mainland clinics. He spent most of his time at Tulane and at Cook County Post-graduate School.

DR. LOUISE S. CHILDS will serve on the Advisory Committee to the Bureau of Maternal and Child Health and on the Advisory Committee to the Bureau of Crippled Children, relieving Dr. JOSEPH PALMA, whose active duty in the Navy makes his attendance at meetings impossible. She is also serving as Dr. Palma's *locum tenens* at The Clinic.

DR. H. S. DICKSON has opened an office to serve the civilian population in the Hickam Field-Pearl Harbor area. Address: 111 Dillingham Blvd. He continues to carry on his practice at the Pensacola office as well.

DR. FREDERICK GILES from Mahelona Hospital, Kauai, has come to Honolulu and joined The Medical Group.

DR. H. I. METZ, who has been at Wilcox Memorial Hospital since January 1, 1941, is leaving to enter the army. Dr. Metz is a graduate of Marquette University. He came to Lihue from Tubbock, Texas, where he interned. Dr. J. W. GAUTHIER replaces him.

Dr. Gauthier interned at St. Joseph Hospital, Ashland, Wis., during the past year. He is a graduate of Boston University Medical School, 1939. He took up his new duties at the Wilcox Memorial Hospital on August 15th.

DR. HERBERT ROTHWELL returned to Kahuku after two months on the mainland where he attended the A.M.A. Convention in Cleveland and spent some time in New York City and the West Coast.

DR. IVAR J. LARSEN is now at Kohala substituting for Dr. RICHARD T. TREADWELL during his absence on the mainland.

DR. CHARLES L. WILBAR, JR., Director of the Bureau of Maternal & Child Health returned after a year's study with Dr. GRAEME MITCHELL at the Children's Hospital, Cincinnati. Before returning to Hawaii he took the American Board examination in Pediatrics.

DR. ELLIS STEPHENS of the Territorial Hospital just returned from the mainland and brings with him equipment for electric "shock" therapy, which is coming into wide use along with insulin and metrazol.

DR. H. REICKERT has joined the staff of the Fronk-Wynn Clinic.

DR. MARTIN H. LICHTER has moved from his Kaimuki address to the Young Hotel, room 374. He will be doing general work.

DR. T. P. CHOU and his wife, DR. ELLEN LEONG, have taken offices at 1464 Emma St., returning recently from Shanghai where they were engaged during the last two years in war relief work. Dr. Chou was director of the Ear, Nose & Throat Division of the National Medical College at Shanghai and Dr. Leong was in charge of the Department of Obstetrics and Gynecology.

DR. G. H. LIGHTNER of Puunene, Maui has left for an extended vacation on the mainland after several postponements.

DR. GARDNER BLACK has gone to the Volcano House to get away from the heat which has reached a new high lately—the hottest since 1919.

**THE SOCIETY OF  
THE NEW YORK HOSPITAL  
LEWIS CASS LEDYARD, Jr. FELLOWSHIP**

The Lewis Cass Ledyard, Jr. Fellowship was established in 1939 by a gift from Mrs. Ruth E. Ledyard, wife of the late Lewis Cass Ledyard, Jr., a Governor of The New York Hospital. The income, amounting to approximately \$4,000.00 annually, will be awarded to an investigator in the fields of medicine and surgery, or in any closely related field. This amount will be applied as follows: \$3,000.00 as a stipend and, approximately, \$1,000.00 for supplies or expenses of the research. In making the award, preference will be given to younger applicants who are graduates in medicine, and who have demonstrated fitness to carry on original research of high order. The recipient of this Fellowship will be required to submit reports of his work under the Fellowship, either at stated intervals or at the end of the academic year; and when the result of his work is published he will be expected to give proper credit to the Lewis Cass Ledyard, Jr. Fellowship. The research work under this Fellowship is to be carried on at The New York Hospital and Cornell University Medical College. The fellowship will be available on July 1st at the beginning of the academic year. Applications for the year 1942-43 should be in the hands of the Committee by the 15th of December. It is expected that the award will be made by March 15, 1942.

Application for this Fellowship should be addressed to:

The Committee of the Lewis Cass Ledyard, Jr. Fellowship

The Society of The New York Hospital  
525 East 68th Street  
New York, N. Y.

### WANT ADS

Situation wanted. ROENTGENOLOGIST.

Tetsui Watanabe, M.D. Graduate of Rush 1938; one year general internship, 6 months general residency, and 2 years residency and post-graduate study in radiology, University of Chicago. Address: 3410 Campbell Ave., Honolulu.

Dr. Willia F. Hume, formerly with Dr. Keay at Pepeekeo, Hawaii, will be returning to Honolulu about the middle of October after a two years' professorship in the Orient, and wishes to remain here about two or three months before going on to the coast. He will be available for relief work during his stay.

**Wanted—RESIDENT PSYCHIATRIST.** Examination announcement is made by the Civil Service Commission of the Territory of Hawaii for a RESIDENT PSYCHIATRIST, P-1, \$166-67-\$216.57. Applications for the position are being accepted to establish promotional and open-competitive eligible lists up to October 8, 1941 at 4:00 o'clock P.M. For details see Civil Service Commissions of the counties of Hawaii, Kauai, Maui and Honolulu.

### CHANGE OF ADDRESS

Use this blank to advise the Journal Office of your change of address so there will be no interruption in the receipt of your Journal and no extra postage required in forwarding from the former to the new address.

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## BURNS—A NEW TREATMENT

A new treatment for burns is on trial here in the Territory, available at the Queen's Hospital. It is a solution to be sprayed on burns of any degree. When it dries it leaves a celluloid-like surface which is not removed until the burn is completely healed. The formula is 3-1/2% sulfadiazine powder, 8% treyethanolamine and 88% distilled water.

A series of 120 cases at Johns Hopkins treated in this way produced not a single infection.

Lederle Laboratories are shipping a quantity of this product to Dr. Larse at Queen's Hospital and it will be available, free of charge, to all physicians, including Army and Navy physicians, and all institutions, upon requisition to Dr. Larsen. The only requirement is that a report of each case thus treated be returned to the Lederle Laboratories through Dr. Larsen. About a three months' supply for this experimental purpose is being made available.

Dr. M. F. Haralson, Territorial Commissioner of Public Health, brings to the attention of physicians of the Territory the necessity of reporting cases of communicable disease to the Board of Health.

Section 1090, Revised Laws of Hawaii, 1935, requires the reporting of 41 types of communicable diseases. During the past few weeks it has been noted that physicians have failed to report a number of cases of typhus fever, bacillary dysentery, and lobar pneumonia.

Dr. Haralson pointed out to the Association members the importance of early reporting of all notifiable diseases, particularly at this time when the influx of hundreds of mainland defense workers increases the possibility of epidemics of diseases not endemic here at the present time. He added that hospitals should not be depended upon to make the reports, as this does not relieve physicians of their responsibility.

DR. HERBERT BOWLES went to the mainland this summer to take the American Board in Obstetrics and Gynecology, and visited the university hospital at Ann Arbor and the Univ. of California hospital in San Francisco.

A new service has been instituted in the Society on Hawaii—that of obtaining schedules of all post-graduate courses offered in the various schools, hospitals and cities of the Mainland. This service will be kept up-to-date and will be available to physicians wishing to plan study courses.

(Suggestion by editor: A brief schedule of such courses might be published in the journal so as to be available to the doctors on all the islands).

DR. R. B. CLOWARD has joined the air-minded physicians of Hawaii, flying to California by Clipper and continuing by air to Chicago to take the American Board examinations in Neurology.

DR. IVAR J. LARSEN is now at Kohala substituting for DR. RICHARD T. TREADWELL during his absence on the mainland.

DRS. TESSMER and FENNEL took the American Board in Pathology this summer; DR. DOOLITTLE the American Board of Internal Medicine, and DR. GAUDIN and WILBAR the American Board of Pediatrics.

DR. GAUDIN attended the Region 3 American Academy of Pediatrics while in Chicago, and after the American Board Examinations vacationed in Southern Alberta where he says he caught a 23 1/2 pound lake trout, the biggest catch of the season in that area.

DRS. WAI KAI CHANG and FRED K. LAM celebrated last month the twentieth anniversary of their working together, an event which many of the doctors and their wives were invited to share with them at a dinner given at Lau Yee Chai.

## For a Grand VACATION

*Come Up Where It's Cool!*

Here at cool Kilauea is the ideal vacation spot for either doctor or patient. You'll enjoy the beautiful mountain setting . . . cool, invigorating climate . . . gorgeous scenery . . . restful, pleasant surroundings . . . excellent cuisine that offers the best in delicious meals . . . cool, airy rooms comfortable sleeping and lounging facilities . . . room and bar service . . . all combining to make your visit here complete in every respect. We are confident that our new building, which opens in October, will provide all the facilities you could possibly desire in hotel comfort.

- HIKING
- GOLFING
- TENNIS
- BADMINTON
- MOTORING
- HORSEBACK RIDING
- SULPHUR BATHS
- STEAM BATHS

KILAUEA  
**VOLCANO HOUSE**  
HAWAII NATIONAL PARK





DR. FRED K. LAM was appointed general chairman of the United China Relief Inc. for the Territory of Hawaii and was in charge of raising funds in the Territory in the nation-wide campaign to raise \$5,000,000 for general relief to China. To date \$38,000 has been raised on the Island of Oahu alone which includes the proceeds of \$5,500 from the Moon Festival. Money is still coming in daily. It is expected that some \$50,000 will be the total from the Territory when the contributions from the other islands are brought in.

HAWAII was well represented at the A.M.A. convention at Cleveland. DR. PINKERTON, delegate, DR. PHILLIPS, alternate delegate; DRs. DOOLITTLE, VAN POOLE, FENNEL, TESSMER, CLOWARD and BOWLES met daily at the "ulcerative colitis booth" after sessions and proceeded on to lunch together. DR. SULIPHANT, one-time pathologist at Kapiolani, completed the group of "Hawaiians".

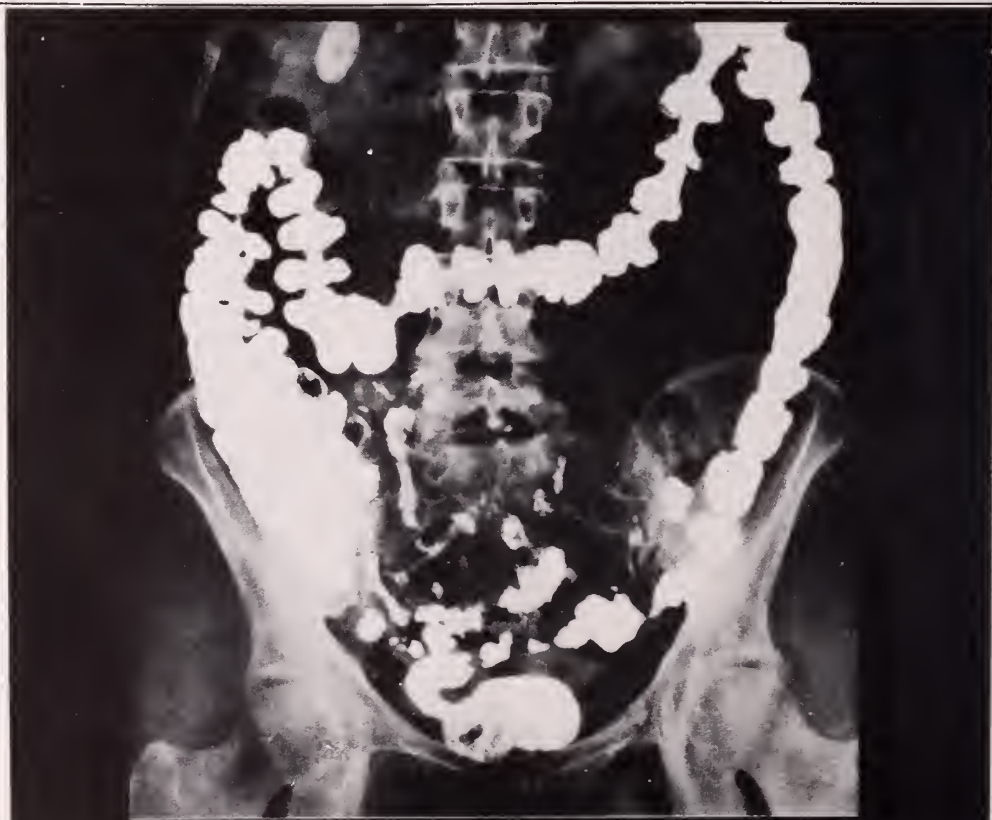
The Territory has lost eight of its doctors to the Navy in the last few months, about one-third of those on the naval reserve list in Hawaii. Those doing active duty are DRs. H. M. CHANDLER, R. MANSFIELD, ROBERT MILLARD, JOSEPH PALMA, F. W. THOMPSON, CLARENCE TREXLER, RODNEY WEST and PAUL WITHINGTON. So far these men have not been required to leave the islands and are stationed at Pearl Harbor, the old Naval Station Dispensary and the Fleet Air Base.

Information about those on active duty with the Army is not available. DR. CARL TESSMER is at Schofield, DR. F. H. TONG is a Captain with the 299th Infantry Medical Corps stationed at Kaukukalo, Maui; DR. ROBERT FAUS has received his commission as Major and active in the civilian preparedness program.

DR. ARTHUR G. HODGINS visited on Lanai recently where he enjoyed going over his son's new house.

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# Fifty-First Annual Meeting

## HAWAII TERRITORIAL MEDICAL ASSOCIATION

Mabel L. Smyth Building  
Honolulu, Hawaii  
May 2, 3 and 4, 1941

FRIDAY, MAY 2, 1941, 1:30 p.m.

The Fifty-first annual meeting of the Hawaii Territorial Medical Association was opened in the auditorium of the Mabel L. Smyth Building with an address by the retiring President, Dr. Paul Withington, and followed immediately by a combined meeting of the House of Delegates and membership.

### PRESIDENT'S ADDRESS

PAUL WITHINGTON, M.D.

This is the first meeting of the Hawaii Territorial Medical Association to be held in the Mabel Smyth Building. That in itself marks the meeting as of special note.

There are three really important things that have happened during the year as far as the Association is concerned. Perhaps the opening of this building is the most important. It represents a great deal of work, gifts from a great many people, and the accomplishment of something that many of us had hoped to see in Hawaii for a long time. I think we have not only to be grateful to those in whose memory the building was built — Mabel Smyth, Dr. Charles Adams,

Alice Yates, Colonel Merriam, and others in memory of whom money was given, but also have to give thanks to the noble work of the nurses, particularly Mrs. Akana, and we have to be extremely grateful for the splendid response the members of the profession on the outside islands gave. I think those of us in town who have much more opportunity to use the building can feel very grateful to those on the outside islands who generously gave toward the completion of this building.

The second memorable event of the year was the final completion of the incorporation of the Association and the adoption of a new charter and by-laws so drawn as to bring us back to the original society of the medical profession organized years ago, under the monarchy. We are now a corporate body which should be of interest to each and every one of us particularly since we have recently been called a trust in the decision made by the Supreme Court of the United States. As an incorporated association the burden can go no further than the association for financial obligations. We have for a long time wanted to be incorporated, now we are incorporated, and at this meeting, for the first time, we are working under the new charter and by-laws.



The third important thing has been the start of public lectures under the auspices really of the association, though by means of a committee called the "Hawaii Health Education Council." Through the efforts of our Committee on Health Education, some nine health agencies were invited to send delegates to a meeting, and from that meeting arose a council which has already started to bring to the public what goes on in the medical world. The first public meeting was held last week at which Dr. Max Cutler was the guest speaker. For those of you who were not here, I want to say it was a very auspicious beginning. This hall was packed and we

had an overflow meeting which filled the Alice Yates room to which loud speaker connection was made. A really wonderful demonstration of the public wanting to hear what can be given out in the way of knowledge through the medical world. The second lecture is planned for Dr. Blankenhorn next week. We have attempted in various ways in the past to bring medical education to the public, now with this auditorium and our facilities here there is no reason why it should not be successful.

The rest of the year has been a routine one. The Council has met at regular intervals, the business has been not unusual. The committees have done their work and have functioned normally. A great deal of the success of the normal activities, as well as the abnormal activities, is due, I am perfectly sure, to our paid secretary, Mrs. Bolles. It has been suggested that she really should be made Executive Secretary of the Association. It is very easy for all of us to load her shoulders with many details and at times she is literally swamped.

From a publicity point of view, except for our education program, we have done very little. The publicity



committee attempted to see what could be done in the way of radio and newspaper publicity. That turned out to be very expensive and was not pushed very far.

In a legislative way the association did very little this year. The Legislative Committee felt it was a bad time to make any special move for legislation. We merely attempted to help such legislation as the Board of Health wanted to put through and opposed a few bills which we thought were detrimental to the welfare of the community.

From an economic point of view the doctors are faced with very much the same situation as a year ago. Those of you who were at the banquet last year will remember I said we would make an effort to improve the economic status of the doctor this year. More and more the doctor is called upon for services and more and more he is unpaid for these services. We had during the last year a splendid example of that sort of thing. When the draft bill was passed by Congress and put into operation the doctors all over the country were called upon to examine draftees. Here in the Territory the Territorial Association, through its representative Dr. Fronk, assisted the Governor in working up committees and the doctors were drafted to do the draftee examinations. Many hundreds of hours were given to that work without recompense. As usual, nobody expected to pay the doctors for that work. At the present time there is a disaster or defense program. Again the doctors are called upon to do a very large amount of work. No one, of course, expects to pay the doctor. These are patriotic services, we volunteer and give our services freely, but we are also being called constantly to give more and more service to the so-called indigent. This indigent list has grown way beyond what would have been considered indigent 30 or 40 years ago. Salaries paid to workmen are higher, yet the list of indigents increases, largely because the state is taking care of more and more of the population. So the doctors are called to do a great deal of work without compensation. As I said a year ago, instead of being the high-class moneyed people that we are often supposed to be, actually the average income of the doctor in this community is not very large. From the Territorial income tax returns in 1938, available in 1940, one sees that out of 153 doctors making returns, 83 had a net income of \$5,000, only four had a net income of over \$25,000. In 1939 the figures are very much the same. The number making returns increased 10 percent or 12 percent but those with a net income of \$5,000 was still high, more than 50 percent, but we have been fortunate in that instead of four doctors having a net income of over \$25,000, we had six.

We are under a national emergency. We are faced with the possibility of a great deal more service. I think we should bear in mind that we must protect the profession economically. The expense of being medically educated is on the increase, rather than the decrease, and the returns are certainly not increasing. I hope that the succeeding administration will keep on with the study of the economic situation.

This ends my address: For the sake of Dr. Judd, and knowing that he will not agree with me, I quote my favorite verse from the Bible, Ecclesiastes 12:12 —

"Of the making of many books there is no end,  
and much study is a weariness of the flesh."

With that as a title we will go on to the business of the meeting.

## MINUTES

### HOUSE OF DELEGATES MEETING

PRESENT: Roll call showed the following delegates and councillors present:

President—Paul Withington  
Secretary—A. L. Craig  
Treasurer—D. B. Bell  
Vice-Presidents: C. B. Brown, R. J. McArthur,  
Y. P. Chang.  
Councillors: L. G. Phillips, Sam Wallis  
Delegates:  
Honolulu— N. M. Benyas, R. O. Brown, F. K.  
Lam, H. T. Rothwell, O. L.  
Schattenburg.  
Kauai — A. L. Waterhouse  
Maui — Homer Izumi  
Hawaii — H. E. Crawford, C. B. Brown

REPORTS: The following reports were read and upon due action voted to be accepted and placed on file:

1. Reports of component societies: Honolulu County (Exhibit A), Hawaii County (Exhibit B)
2. Report of Council (Exhibit C)
3. Report of Secretary (Exhibit D)
4. Report of Treasurer (Exhibit E)
5. Report of committees:
  - a) Cancer Committee (Exhibit F)
  - b) Health Education (Exhibit G)
  - d) Public Policy and Legislation (Exhibit I)
  - e) Scientific Work (Exhibit J)
  - f) Tuberculosis (Exhibit K)
  - g) Board of Management, Mabel Smyth Building (Exhibit L)
  - h) Preparedness Committee (Exhibit M)
  - i) Bulletin Committee (Exhibit N)

Action: Upon motion by Dr. Schattenburg, duly seconded, it was voted that the Bulletin Committee's report be accepted and that we take some official cognizance of its recommendation in this session.

Saturday, May 3, and the general meeting proceeded with the Meeting of the House of Delegates adjourned until luncheon, presentation of the scientific program. (Exhibit P).

Respectfully submitted,

A. L. CRAIG, SECRETARY

## REPORT OF THE HONOLULU COUNTY MEDICAL SOCIETY ACTIVITIES FOR THE YEAR 1940-1941

(Exhibit A)

By A. W. DURYEA, M.D.

Recording Secretary

The first part of the year was a very active one, numerous special meetings of both the Board of Governors and the general membership being held to draft the Hawaii Medical Service Association plan. This work was completed and the plan put into operation on July 1, 1940. Except for a review of operations just before the County Society's Annual Meeting to consider possible revisions and recommendations for the coming year, the plan has operated well enough to require very little attention. No recommendations for changes in the plan were made by the Medical Society for the coming year.

It may be of interest to note that the Board of Governors had 22 meetings throughout the year and the general membership 13.

One regular meeting was devoted to a discussion of the need for a program of public policy and publicity to bring before the public some consideration of the economic side of the practice of medicine. The editors of the two leading newspapers were guests at the meeting and made valuable suggestions. One good piece of public relations work was done at the Hawaiian Products Show, where eight health agencies, through a plan initiated by the Medical Society, combined forces and coordinated their material into one large general health exhibit. This cooperative effort among the agencies alone was of great value and the public showed keen interest in the exhibit.

A plan for physical examination of YMCA members was worked out between that Association and the Medical Society.



Contract practice still remains a major problem before the Society and several situations which appear to violate the fundamental policies of ethical contract practice are being investigated.

The Library Committee has arranged, at some expense, to keep the library opened evenings, Saturdays and Sundays, and has offered its lending service to the other islands.

The County Society will cooperate with the Territorial Association's Health Education Committee in its plans for public education and will be one of the eight health agencies constituting the Hawaii Health Education Council.

Arrangements were made by the Post Graduate Committee to bring Dr. M. A. Blankenhorn to Hawaii for a lecture course on internal medicine.

The scientific program for the year covered some 25 papers and discussions as follows:

Careful study was given to the revision of the Territorial Association's by-laws by the Board of Governors which resulted in several major recommendations, adopted subsequently into the by-laws.

The Honolulu County Medical Society gave \$500 out of its funds for the furnishings of the Doctors' Board Room on the second floor of the Mabel Smyth Building.

Several membership meetings were devoted to the discussion of the work done by the Medical Examining Board during the draft and to the civilian defense plans.

- Diagnostic Aspects of Primary Carcinoma of the Liver—Dr. I. A. Kawasaki.
- Motion picture on Contact Glasses—shown by Dr. W. J. Holmes.
- Narcotics as related to the medical profession—C. T. Stevenson, Bureau of Narcotics.
- Anesthesia and Analgesia—Dr. L. A. Emge, visiting professor.
- Evaluation of the Results of Metrazol Therapy—Dr. R. D. Kepner.
- Activities of the Welfare Department of the Territorial Hospital—Mrs. S. Partello.
- Cerebral Destruction Resulting from Head Injury—Dr. R. B. Cloward.
- Occupational Treatment of Mental Disease—Mrs. Ann Jewell Heatb.
- Management of Excited Patients—Dr. E. E. McNiel.
- Pathological Lesions of the Fundus—Dr. F. J. Pinkerton.
- Modern Methods of Venereal Disease Control—Dr. R. D. Millard.
- Symposium on Thoracoplasty:
  - Indication—Dr. H. H. Walker.
  - Technique—Dr. J. E. Strode.
  - Results—Dr. R. N. Perlstein.
- Polyradiculoneuritis—Capt. James W. Howard.
- Pneumococcal Meningitis—Capt. Elmer D. Gay.
- Bundle-branch Block in a Young Healthy Individual—Capt. Daniel J. Waligora.
- Sulfanilamide, Local Use of Powder in Traumatic and Operative Wounds—Maj. August W. Spittler.
- Perforated Peptic Ulcer with Presentation of Two Cases—Major John P. Bachman.
- Drug Eruptions—Dr. H. L. Arnold Jr.
- A Brief Discussion of Certain Aspects of Leprosy—Dr. E. K. Chung Hoon. Slides by C. Smith. Discussion by Dr. Geo. L. Fite.
- Congenital Syphilis with Consideration of Diagnosis and Treatment—Dr. H. M. Johnson.
- The Pathology of Leprosy—Dr. George L. Fite.
- Hawaii's Mental Health Program—Dr. E. E. McNiel.
- Management of Breech Presentation—Dr. L. G. Phillips.
- The Role of X-ray in the Practice of Obstetrics—Dr. H. E. Bowles.
- Analgesia in Obstetrics—Dr. Richard Y. Sakimoto.

The Hawaii County Medical Society met once a month on the first Tuesday of each month throughout the year at the Hilo Memorial Hospital Library with the exception of the Semi-Annual and Annual meetings which were held elsewhere on Saturday. Special meetings were held to hear Dr. I. S. Ravdin of Philadelphia, Dr. Ludwig Emge of San Francisco and Dr. A. L. Craig of Honolulu. The dinner meetings were most successful. The list of scientific papers presented were as follows:

- Nembutal and Barb-Eth-Oil Analgesia for Comfortable Delivery—W. B. Patterson. Colored motion picture Modern Obstetrics.
- Primary Type of Pulmonary Tuberculosis—Carl Wilen.
- Seasickness—A. T. Roll.
- The Clinical Management of the Disturbance of Carbohydrate Metabolism in Hyperthyroidism—T. L. Althausen, University of California Medical School.
- Socialized Medicine—Attorney Harry Irwin.
- Discussion by Dr. M. F. Haralson.
- Psychiatry and Office Practice—Edwin E. McNiel.
- Tuberculous Tracheobronchitis—Edmund Tompkins.
- Roentgenological Study of Intestinal Tuberculosis—M. L. Chang.
- Puncture Wounds of Chest—W. J. Seymour.
- Sinusitis—G. Y. Tomoguchi.
- Henoch's Purpura—R. T. Treadwell.
- Coronary Thrombosis—H. B. Yuen.

The scientific programs where guest speakers were invited were in charge of the Post Graduate Committee.

The Semi-Annual meeting at Waimea on October 12, 1940, and the Annual Meeting at the Hilo Country Club on April 12, 1941, were social affairs. Both were preceded by golf tournaments in the afternoon. The physicians of the Hamakua and Kohala districts were hosts to the October meeting and Dr. C. B. Brown, the retiring president, was the host for the April meeting. At the Annual Meeting the election of the officers was held and motion pictures on pneumonia and syphilis were shown through the kindness of the Board of Health.

In June 1940 an amendment was added to the Constitution and By-Laws whereby the positions of secretary and treasurer were separated.

In November District Medical Examining Board and Medical Advisory Board were appointed to aid in the National Defense Program.

The responsibility of the December number of the Hawaii Territorial Medical Association Bulletin was assigned us and when the papers were assembled both the December and January issues had to be given to our Society. The response was certainly encouraging.

During the Year the following members joined us either through transfer or election: Drs. Kurashige, Balfour, Tompkins, Tomoguchi, and Eklund, while the following transferred to other county medical societies in the Territory and on the mainland: Dr. J. Jensen, Dr. H. S. Dickson, Dr. Carl Wilen, and Dr. W. B. Patterson.

Some of the members have already gone and several are contemplating trips to the mainland for post-graduate studies and vacations.

## REPORT OF THE COUNCIL

(Exhibit C)

By A. L. CRAIG, M.D.

## REPORT OF THE HAWAII COUNTY MEDICAL SOCIETY ACTIVITIES FOR THE YEAR 1940-1941

(Exhibit B)

By T. YOSHINA, M.D.  
Secretary

Four meetings of the Council were held this year. With an attempt at quarterly meetings as far as feasible, the Council met in August, November, December and March. Drs. Lightner, Wallis, Fleming and Keay attended one or more of these meetings, representing the outside islands.

The business transacted at each meeting was as follows:

**1. Meeting, August 22, 1940:**

As a result of conferences held with Dr. Haralson, commissioner of Public Health, it was decided not to send out the resolution regarding the mental health program adopted at the Annual Meeting.

Approval was given Dr. Batten, chairman of the Cancer Committee, to initiate steps with the Chamber of Commerce for raising \$25,000 for a deep therapy X-ray unit, which the Queen's Hospital trustees were willing to install, provided Queen's Hospital agrees to establish a cancer clinic along the lines defined by the American College of Surgeons.

Approval was given, upon request, to the American Otological Society for its efforts to adopt standard definitions relating to auditory functions.

Dr. H. C. Gotshalk was appointed to the Examining Board of the Board of Hospitals & Settlements for the period July 1940 to June 1941 with Dr. H. L. Arnold, Jr. as alternate.

Dr. C. E. Fronk was appointed to represent the Association on the National Medical Preparedness Committee of the A.M.A.

In response to the University of Hawaii's request that a standard fee for physical and medical examination of freshmen be established, the Council voted, after circularizing the county societies, that the standard fee be \$3.00. Every member of the Territorial Association was so advised.

The Plantation Bulletin having included, without permission, in its July issue the address of the President given before the Territorial Medical Association Annual Meeting, a letter calling attention to this fact was ordered sent to the Plantation Bulletin.

The Public Policy and Legislation Committee presented a request for authority to initiate a publicity campaign and to assess each member \$2.00 per month to carry on such a program. Although the outside islands had been circularized regarding this, it was felt that the county societies had not been sufficiently informed for a vote to be taken in the matter. It was therefore decided that each component society have a plebiscite on this question, that adequate information be sent to each member prior to the meeting at which the vote is taken, that the Association vote on the proposal after the county societies had taken action, and that the matter be fully discussed in the next issue of the Bulletin.

The activities of one A. Llanos brought to the attention of the Council by the Kauai County Association, and now believed to be operating on Oahu, were given consideration. It was voted that such information as is susceptible of proof be circularized among the members as a warning, especially to the plantation physicians. The subsequent edition of the Bulletin carried an article regarding this.

The residency requirement in the Medical Practice Act was brought up for discussion and the Council went on record as again opposing this requirement. Certain legislation initiated by the Public Health Committee of the Chamber of Commerce was voted to be given support by the Association, namely, (a) increase in the staff of public health nurses; (b) additional appropriation to carry out Tuberculosis Survey findings; (c) Basic Science law; (d) compulsory sterilization of feeble-minded. It was pointed out that much discrepancy existed in the licensing laws covering the healing arts, in the power vested in their governing boards and the authority given licensees, and it was suggested that the Legislative Committee study these laws and be prepared to recommend to the Legislature changes in the interest of uniformity.

The draft of the charter of incorporation being prepared by the lawyer was not ready in time for this

meeting and authorization was given to pass upon the draft at a future council meeting at which a quorum is present.

**2. Meeting, November 15, 1940:**

Charter having been prepared by the lawyer and the by-laws revised, copies were circulated to the county societies inviting them to study the proposed revisions and make recommendations. The Council was informed that the Maui, Kauai, Hawaii counties had no recommendations to make. Recommendations submitted by the Honolulu County Society were discussed at length and it was agreed to circulate these to the councillors on the outside islands and to the other county societies for study and action prior to the next quarterly meeting of the Council to be held in December.

**3. Meeting, December 13, 1940:**

Letter was received from Dr. Arnold resigning from the Council and all territorial committees and from the Board of Management of the Mabel Smyth Building. No replacement on the Council was made, such action being reserved for the next Annual Meeting. Dr. Phillips was appointed to replace Dr. Arnold on the Board of Management of the Mabel Smyth Building.

The Health Education Committee, of which Dr. Phillips is chairman, stated that it had under consideration a public health education program to be planned and executed by some eight health agencies in cooperation with the Territorial Medical Association. Approval was given to the carrying out of such a program and the President was given authority to proceed with the formation of the suggested Health Education Council.

The Public Policy and Legislation Committee reported that it had not been very active since the last Council meeting with regard to its program of publicity then suggested, since certain questions regarding finance had arisen. The committee felt it should lend support to the program suggested by the Health Education Committee.

The committee reported that no active legislation had so far been adopted. Dr. Pinkerton at this time presented legislation which he thought the Association should back. The Council voted to back the following: (a) Remedial legislation for the Bureau of Vital Statistics; (b) Two additional inspectors for the Rural Sanitation service; (c) Additional appropriation for mosquito and rat control; (d) Continuance of the Bureau of Mental Health; (e) Additional appropriation to the Tuberculosis Bureau; (f) Support for the League of Hard of Hearing. The following legislation was left to the discretion of the Legislation Committee: (a) Compulsory sterilization of the feeble-minded; (b) Blood test for all pregnant women; (c) Certification of freedom from venereal diseases before marriage; (d) Increased meat and milk inspection service.

The Treasurer was authorized to pay the attorney's fees in connection with the charter and by-laws.

The Council voted to guarantee to the Mabel Smyth Maintenance Fund the sum of \$25.00 per month as its prorata share in consideration of occupying space in the building.

In consideration of the Honolulu County Medical Society having offered facilities of the Library for territorial-wide use, the Council voted to recommend to the county societies additional dues of \$2.00 per member per year to the Library Fund. The councillors were instructed to present this for consideration at their county society meetings.

Changes submitted by the Honolulu and Kauai county societies to be incorporated in the revised Charter and By-Laws were accepted.



**4. Meeting, March 27, 1941:**

Plans for the Annual Meeting were presented and approved.

The councillors reported that Hawaii and Maui county societies responded favorably to the assessment for library purposes, but that Kauai did not wish to participate. It was voted to recommend to the House of Delegates at the Annual Meeting the assessment of \$2.00 per member per year.

A summary of pending legislation pertaining to medical affairs was given and the urgency of the study of the licensing laws of all the healing arts was again stressed. It was recommended that the new legislation committee make this a project for the next two years.

Dr. Pinkerton was elected as delegate to the AMA and Dr. Phillips, alternate.

It was recommended that at the Annual Meeting the Advisory Committee to the Maternal and Infant Hygiene Bureau of the Board of Health be definitely designated as a committee of the Territorial Medical Association, with a chairman appointed by the Medical Association, whose duty it shall be to report the proceedings of that committee to the Medical Association.

Drs. Bell and Phillips were appointed a committee of two to study the request of the National Physicians Committee to cooperate in the publication of certain material.

**REPORT OF THE SECRETARY**

(Exhibit D)

By A. L. CRAIG, M.D.

The total membership of the Association is 273, an increase of 11 over the previous year. By counties this membership is made up as follows:

	Regular Members	Honorary or Life Members
HONOLULU .....	197	17
HAWAII .....	35	1
MAUI .....	21	1
KAUAI .....	20	2
	<u>273</u>	<u>21</u>

The total number of physicians practising medicine in the Territory as of March 9, 1941, is 333, so that about 82 percent of the physicians in the Territory belong to the Association, as compared with 79 percent last year.

The principal activity of the Association this year centered around effectuating the plan proposed and adopted at the last annual meeting to establish the corporate status of the Association. This and the revision of the by-laws took endless hours of work and has resulted in the adoption in March by the membership at a special meeting called for the purpose, of the Charter and By-Laws as published in the Association's Bulletin of February 1941.

**TREASURER'S REPORT**

(Exhibit E)

May 15, 1940 - May 1, 1941

DOUGLAS B. BELL, M.D.

CASH ON HAND, May 15, 1940:

Checking Account .....	\$1,944.24
Savings Account .....	665.51

\$2,609.75**RECEIPTS:**

Membership dues .....	3,020.00
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Registration fees .....	250.00	
Refund Transportation .....	42.80	
Refund Insurance .....	5.00	
Interest Savings Account .....	9.20	3,327.00
		<u>\$5,936.75</u>

**DISBURSEMENTS:**

Salaries .....	\$1,800.00	
Rental, Jan.-April .....	100.00	
Supplies .....	29.90	
Postage .....	46.18	
Annual Meeting 1940 expense .....	349.40	
Proceedings .....	443.50	
Bulletin & mailing .....	644.97	
Mimeograph & printing .....	10.15	
Mabel Smyth Fund donation .....	1,025.00	
Attorney's fees .....	150.00	
Miscellaneous .....	33.98	\$4,633.08

BALANCE May 1, 1941 .....		\$1,303.67
Checking Account .....	\$628.96	
Savings Account .....	674.71	
		<u>\$1,303.67</u>

**REPORT OF THE CANCER COMMITTEE**

(Exhibit F)

G. A. BATTEN, M.D., CHAIRMAN

The committee has been stymied during the past several years because of the inability to remove obstacles in the way of the installation of a deep X-ray unit at the Queen's Hospital and provide for its operation.

Fortunately all obstacles have been removed and funds have been made available for the installation of a deep X-ray unit at the Queen's Hospital. The Board of Trustees of the Hospital are now making arrangements for the installation of such a unit and for the services of a trained man to take charge of this work. They have agreed to the formation of a Cancer Committee patterned after the requirements of the American College of Surgeons. When this is completed adequate facilities will be available for the care of all types of cancer and proper publicity can then be undertaken.

Dr. Max Cutler, vacationing in Honolulu, kindly offered to lecture to the doctors as a follow-up of the lectures he gave in 1936. This lecture was very well attended. Dr. Cutler received invitations to the other islands but unfortunately he felt his time was too limited to make these trips.

Also during his visit he gave a public lecture in the Mabel Smyth auditorium. This lecture was sponsored by the Hawaii Health Education Council and the Cancer Control Committee of the Chamber of Commerce.

**REPORT OF THE HEALTH EDUCATION COMMITTEE**

(Exhibit G)

BY LYLE G. PHILLIPS, M.D., CHAIRMAN

At the instigation of, and through the efforts of your committee, a definite public health education program has been undertaken. After considerable study it was felt that the aims and purposes of such a program could best be accomplished through the organization of what we have chosen to call the "Hawaii Health Education Council." Meetings, called by your committee, were attended by representatives of Hawaii Territorial Medical Association, Territorial Board of Health, Department of Public Instruction, University of Hawaii, Hawaii Territorial Nurses Association, Hawaii Territorial Dental Association, Public Health Com-



mittee of the Chamber of Commerce, and the Tuberculosis Association.

A permanent council was organized when it became apparent that these several agencies approved of and were prepared to participate in the program prepared. This council has now been functioning for the past three months and much of the work preliminary to full activity has already been accomplished.

Briefly, the plan contemplates the employment of five distinct media for the dissemination to the public of health education material—(a) the spoken word, (b) printed material, (c) exhibits, (d) motion pictures, (e) radio.

The plan also contemplates the use of the Mabel Smyth Memorial Building facilities to as full an extent as possible.

One public lecture, that delivered by Dr. Max Cutler on "The Control of Cancer," has already been held, and a second public lecture will be given next week by Dr. Blankenhorn on the subject "Foods and Vitamins." A special effort will be made to secure the services of as many outstanding Mainland visitors during the coming year for lecture purposes as possible. A speakers' bureau, organized from the personnel of the medical profession, Board of Health, University of Hawaii and other participating agencies, is now in process of being organized, for it is contemplated to provide talks on a wide variety of subjects for groups and organizations.

The Hawaii Health Education Council will undertake to maintain a library of the pamphlets published by the American Medical Association, American Public Health Association, the Children's Bureau of the Department of Labor, and many other Mainland organizations, and will make an effort to increase the dissemination of this type of literature through channels where the greatest benefit may be obtained.

The Council also contemplates promoting a series of public exhibits dealing with health matters and, in this, is working in close cooperation with a special committee of the Oahu Health Council interested in the development of a permanent museum of health for Honolulu.

The Council will undertake to increase in the community the use of the many motion picture films available. Already, in cooperation with the Bureau of Maternal and Infant Welfare of the Board of Health, arrangements have been made for motion picture programs.

The use of the radio in disseminating health education material will also be employed. Again cooperating with the Bureau of Maternal and Infant Welfare of the Board of Health, the council is making plans for putting certain programs on the air.

Up to the present time the Hawaii Health Education Council has functioned without a budget, and without definite means of financial support. The members have been of the opinion that the value of such an effort as they are engaged in can be demonstrated, at least to begin with, without the expenditure of considerable sums of money. However, as the plan unfolds, it becomes apparent that some provision must soon be made for defraying the expenses incident to accomplishing all of the aims which have been outlined. The Council is not ready at this time to make a definite recommendation in regard to finances, but has several plans under consideration.

At the present time the actual work involved in making the program effective is being done by a small group of paid executives of several of the organizations represented on the Hawaii Health Education Council. These individuals include Mrs. Bolles, executive secretary of the Territorial Medical Association; Alexan-

der MacDonald, publicity director for the Territorial Board of Health; George West of the Oahu Health Council; Theodore Rhea, executive secretary of the Tuberculosis Association; Tate Robinson, Director of the Division of Health Education of the Department of Public Instruction; Kam Pui Lai, of the Tuberculosis Association; and Mildred Byers, Territorial Nurses Association. This group demonstrated most effectively what could be accomplished by intelligent teamwork when it undertook the promotion of Dr. Cutler's lecture, and, with but a few days to prepare, produced an audience which overflowed the auditorium of this building and necessitated caring for the overflow audience by loud speaker in the Alice Yates room.

This committee desires to emphasize that this public health education program, promoted by and the special responsibility of the medical profession, promises not only to accomplish a well worth while task from the community standpoint but also is a means whereby relations between the medical profession and the public can be tremendously improved.

## REPORT OF THE PSYCHIATRIC COMMITTEE

(Exhibit H)

By R. B. FAUS, M.D., CHAIRMAN

The Psychiatric Committee of the Territorial Medical Society held no meetings and conducted no official business during the year.

## REPORT OF THE LEGISLATIVE COMMITTEE

(Exhibit I)

By N. M. BENYAS, M.D., CHAIRMAN

The Legislative Committee of the Hawaii Territorial Medical Association is unable to give a complete and full report of the activities of this committee at the present time until pending legislation has come out of both the Senate and the House.

The Territorial Medical Association at this session has introduced no bills but in principle sponsored and backed a number of House and Senate bills introduced by the Board of Health and the Chamber of Commerce.

A complete and full report will appear in the proceedings later.

This past session, like all other sessions, has been an education in itself from the standpoint of the lack of understanding on health matters among some of the members of the Health Committee of both the House and the Senate, and we are convinced that the time is opportune for a real educational program carried on through either the newspapers or radio, or both. How funds can be raised for this purpose will, of course, as always, be a problem of the next Legislative Committee, but it must be driven home to the general public, so that our legislators become fully conscious of it, that the interest of the medical man is to protect the public, so as to dispel the suspicion that we are serving a selfish purpose when we appear before the health committees.

A point in question is the bill introduced to extend the scope of the naturopaths. Vicious in its essence, the new definition consists of a jumble of various therapies to a point where it practically lays open all fields of the healing arts to this group. A counter bill introduced by the Board of Health and backed even by the osteopaths and the chiropractors, we understand, has been frozen in the Senate.

We must be more alert than ever at this time to keep

a healthful eye on the future legislation pertaining to the protection of the public as a whole.

The only redeeming feature of this session, in my estimation, is the provision for a hold-over health committee.

As Chairman, I want to express my personal thanks, as well as those of the rest of the committee, to Mrs. Bolles, our Secretary. She has been invaluable and untiring in her efforts. Dr. Phillips also has been very unstinting in his time in appearing before the Senate and House committees with your Chairman whenever called upon. If your committee has accomplished anything during this session my heartfelt thanks go to them.

Neither am I unmindful of the previous legislative committees who have laid a great deal of the ground work for the reception we have received at the hands of this last Legislature.

## REPORT OF THE SCIENTIFIC WORK COMMITTEE

(Exhibit J)

By D. B. BELL, M.D.  
PAUL WITHINGTON, M.D.  
A. L. CRAIG, M.D.

All papers submitted for the annual meeting program were reviewed and each contributor asked to take the responsibility for securing his own discussants. We are trying out this year an idea which has worked very well at the large mainland conventions, namely, panel discussions. Two such, one on a medical subject and another on surgery, are included in the program.

The committee substituted for the usual Saturday morning session of scientific papers, a breakfast round-table discussion starting at 7:30 to be carried on for as long as interest keeps up. The committee thought this might be more stimulating than formal papers.

These are frankly departures from the type of program we had in former years and they should prove for themselves whether they should be continued.

## REPORT OF THE TUBERCULOSIS COMMITTEE

(Exhibit K)

By H. H. WALKER, M.D., CHAIRMAN

As Chairman of the Tuberculosis Committee of the Territorial Medical Association, I beg to report that no meetings were held during the year. I have worked closely with Doctors Haralson and Dougan of the Board of Health with regard to the Board of Health program in tuberculosis, particularly with respect to the question of an intensified case finding program, using miniature X-ray film.

Dr. Haralson has indicated to me that very shortly the Board of Health plans for further development of a tuberculosis case finding program will have matured. At such a time he is most desirous of presenting his plans to the Territorial Medical Association service.

## REPORT OF THE BOARD OF MANAGEMENT MABEL SMYTH BUILDING

(Exhibit L)

By L. G. PHILLIPS, M.D.

The most important factor to report in regard to the

Mabel Smyth Building has to do with the building fund. As you know, this building cost between \$80,000 and \$90,000, exclusive of furnishings, and, when it was opened in January, there was outstanding against the building a debt of less than \$2,000. This is a considerable accomplishment and certainly something that commands real admiration for those who had charge of the fund-raising activities. Already preparations are being made to wipe out this deficit so that within the very near future it can be definitely stated that the building will be debt-free and fully paid for.

The purchase of certain equipment, such as motion picture and projecting apparatus, must be taken care of during the next year, and plans are under way which have a good opportunity of success for raising money for this purpose.

After a building of this kind is completed, the matter of maintenance becomes a special problem and that has been the concern of the Board of Management since I have been a member of that board. The Board of Management consists of representatives of the nurses, of the hospital, on the grounds of which the building is located, and the medical profession. Mrs. Akana and Miss Sinclair represent the nurses, Mr. Hemenway the Board of Trustees of the Hospital, and Dr. Halford and myself represent the medical association and Mrs. Bolles is secretary.

There was some concern in the beginning with regard to income and outgo which now, after four months of operation, I think we can forget. The fixed income from rentals paid by the organizations participating in the use of the building totals \$220.00 a month. In addition the building has income from the rental of this auditorium, from the rental of the Alice Yates Room and the various board rooms, and in the four months since the building was opened these have shown a consistent increase. The figures last month indicated an addition of \$200 over the regular income of \$220, this \$200 being derived from the rental of the auditorium, so that the total income for that month was almost \$450. Our expenses run between \$200.00 and \$300.00 a month, so, if things progress as at present, and as they give every evidence of continuing, not only will the ordinary expenses of maintenance be met, but the various items of equipment may be purchased out of the income.

We discovered early that the management of the building is quite a job and retained Miss Jessie Eymann as full-time manager. We are very pleased to be able to have her and are very satisfied with her services.

## REPORT OF THE MEDICAL PREPAREDNESS COMMITTEE

(Exhibit M)

By C. E. FRONK, M.D., CHAIRMAN

Each county medical society has appointed a medical preparedness committee and has been personally contacted. The Honolulu County Medical Society has been most active during the past month in organizing emergency units and making preparation toward the expansion of already existing hospitals for emergency

The Honolulu Board of Supervisors has adopted a major disaster relief plan in which the County Medical Society plays a most active part. A major disaster relief plan is being presented by the Hawaii County Medical Society to the Hawaii County Board of Supervisors, with the recommendation that it be adopted as a county ordinance.

The failure of the M-day plan to go through the Legislature has upset our plans. The Red Cross is trying to raise money so that there need be no letdown in the program of preparedness. There is still a chance



that this disaster program may become a Territorial law, if a special session of the Legislature is called.

I expect to visit Maui and Kauai counties in the near future.

I want to thank all those doctors who are on the examining boards under the Selective Service Act for their cooperation. Word was received from the Board of Health yesterday that money is available so that we can continue to X-ray all registrants.

## BULLETIN COMMITTEE

(Exhibit N)

D. B. BELL, M.D., CHAIRMAN

There have been no meetings of the Committee. Mrs. Bolles, in charge of getting out the Bulletin, has called on members of the committee as occasion demanded.

Eight issues of the Bulletin appeared during the fiscal year.

The Bulletin has grown from five pages at the start in 1938, published spasmodically, to 26 pages, issued monthly for the last seven months. The cost for the year, mimeographing and postage, was \$644.97 or an average of \$80.50 per issue.

The experiment to have each county responsible for an issue each year, undertaken at Dr. Withington's suggestion, was very successful—each island contributing ample material for a good-sized bulletin, Hawaii enough for two issues.

We suggest that whether you read the articles or not, or if you are inclined to lay the Bulletin aside for more leisurely reading, that everyone on receipt of the Bulletin take a few minutes to scan over the index for items concerning the association's activities and notices. One of the chief functions of the bulletin is the dissemination of information regarding the Association and we expect it to take the place of much individual letter writing. The officers of the county societies and councillors especially cannot afford to skip the reading if they wish to keep informed of the association's activities.

Because our Bulletin has had such a steady growth, and because the cost of mimeographing has increased with its growth, we believe the time has come to investigate the possibility of having it printed.

Information on cost of printing has been secured locally, and actual bids to advertise in our Journal have been secured from mainland advertisers through the Cooperative Medical Advertising Bureau of the A. M. A. Tentatively we might say that such advertising, added to the present cost of mimeographing the Bulletin, would pay for a printed journal. If, in addition, the proceedings of our Annual Meetings were published in the journal instead as a separate publication, another \$400 to \$500 yearly could go to the journal fund. To pull all these resources together, briefly we would have about \$2,000 which should easily cover printing cost of six issues per year.

A suggestion that a subscription fee be charged has not been so well received since it may curtail circulation, and one of the main objectives of the Bulletin is to reach every member of the Association when pertinent messages are to be circulated.

It is recommended, therefore, that:

1. The bulletin be printed instead of mimeographed.
2. The separate publication of transactions of Annual Meeting be discontinued and instead be spread throughout the issues of the journal.
3. The journal be issued bi-monthly.

4. Commercial advertising be included.
5. Each island be responsible for one issue per year.
6. Definite editorial staff be set up.
7. This be referred to the Finance Committee of the Association for consideration.

We would like to have an expression of opinion from the membership as to whether you think the Bulletin has value, and whether the money should be expended for a printed journal.

## DISCUSSION

Dr. Bruce Brown, Hilo: We, as a county, would like to see a Territorial Journal established, and have given expression in the Hawaii issue of our desire to see this Bulletin become a full-fledged journal. We felt quite pleased and honored to be asked to contribute to the Bulletin and our men responded well. I am sure they will be only too glad to carry future issues. As regards the extra expense, I believe the outside counties probably would derive as much value from the \$2,000 spent in this manner as from money spent on other things from which we get no direct benefit. I am speaking on behalf of our Society, and would like to go on record as being in favor of having such a journal established.

Dr. Schattenburg: I think our organization has long looked forward to a publication of this sort. The committee has gone into this very thoroughly and offers figures, which show that it will not be a burden on the organization's funds.

**ACTION:** Upon motion by Dr. Schattenburg, duly seconded, it was voted that the Bulletin Committee's report be accepted and that we take some official cognizance of its recommendation in this session.

## SCIENTIFIC PROGRAM

(Exhibit O)

- Admission Procedures to Territorial Mental Hygiene Facilities—  
Dr. E. E. McNeil
- Mary Smith Goes to the Mental Hygiene Clinic—a skit
- Statistics on Poliomyelitis in the Territory of Hawaii—  
Dr. Richard K. C. Lee
- Discussant: Dr. A. L. Craig
- Rheumatic Heart Disease in Hawaii—  
Dr. S. E. Doolittle and Dr. I. Tilden
- Discussant: Dr. Henry Gotshalk
- Tuberculous Trends—  
Dr. C. A. Dougan
- Medical Panel Discussion—The Sulfonamides—  
Dr. Nils P. Larsen, Chairman
- Discussants: Dr. O. L. Schattenburg, Dr. S. E. Doolittle,  
Dr. Edmund Ing, Dr. A. Ng-Kamsat, Dr. N. E. Stevens
- Diseases of the Eye Photographically—  
Dr. F. J. Pinkerton
- Discussant: Dr. H. E. Crawford
- Specific Therapy of Lobar Pneumonia—  
Dr. M. A. Blankenhorn
- Clinical Evaluation of the Use of Sulfanilamide—  
Lt. Comdr. F. R. Moore
- Discussant: Lt. Comdr. Viacelli
- Psychosis With Huntington's Chorea, Clinico-Pathological Report of a Case—  
Dr. R. D. Kepner
- Discussant: Dr. R. B. Cloward
- Kahili Flower (*Grevillea Banksii*) Dermatitis — A Preliminary Report  
Dr. Harry L. Arnold, Jr.
- Discussants: Dr. H. M. Johnson, Dr. J. T. Wayson
- Dermatologic Lesions vs. Syphilis  
Dr. H. N. Johnson
- Discussants: Dr. Harry L. Arnold, Jr., Dr. J. T. Wayson
- Breakfast Round Table—Medical and Surgical Subjects—  
Dr. Douglas B. Bell, chairman
- Diagnosis and Treatment of Gastro-Enteric Bleeding—  
Dr. M. A. Blankenhorn
- Lobectomy for Bronchiectasis—  
Dr. Rogers Lee Hill
- Ectopic Pregnancy in Hawaii—  
Dr. O. Lee Schattenburg
- Discussant: Dr. Richard Y. Sakimoto
- Strabismus Under the Social Security Program—  
Dr. H. E. Crawford
- Discussant: Dr. F. J. Pinkerton



Surgical Panel—Dr. J. E. Strode, Chairman  
 Treatment of the Appendiceal Stump—Dr. J. R. Judd  
 Use of Kirschner Wire and Bohler Frame in Fractures  
 of the Lower Leg—Dr. A. L. Craig  
 Portal Cirrhosis in Childhood and Its Surgical Treatment—  
 Dr. L. A. R. Gaspar  
 The Chronic Kidney—Dr. J. E. Strode

## MINUTES OF MEETING

### HOUSE OF DELEGATES

Saturday, May 3, 1941, 12 Noon  
 Pacific Club

#### ROLL CALL:

President—Paul Withington  
 Secretary—A. L. Craig  
 Vice-Presidents—  
 Gardner Black  
 H. M. Patterson (recognized for Hawaii)  
 Alfred Burden (recognized for Maui)  
 Councillors: L. G. Phillips, F. J. Pinkerton  
 Delegates: N. M. Benyas, R. O. Brown,  
 H. C. Gotshalk, Fred K. Lam, Guy C. Milnor,  
 H. T. Rothwell, O. Lee Schattenburg, Honolulu;  
 A. L. Waterhouse, Kauai;  
 Homer Izumi, Maui;  
 H. E. Crawford, C. B. Brown, R. T. Treadwell,  
 Hawaii.

**MINUTES:** It was voted to dispense with the reading of the minutes of House of Delegates meeting, Friday, May 2, 1941, as well as the minutes of 1940 annual meeting.

**DELEGATE AND ALTERNATE TO A. M. A. CONVENTION:** It was voted to confirm the election by the Council of Dr. Pinkerton as Delegate and Dr. Phillips as Alternate.

**TIME AND PLACE OF 1942 ANNUAL MEETING:** It was voted that the next annual meeting be held in Honolulu and that the date of the meeting be left to the discretion of the Council.

**REPORT OF FINANCE COMMITTEE:** Budget as follows was presented by the Council:

Cash balance on hand in Savings	
Account & Checking Account	\$1,303.67
Membership dues expected 273 @ \$15	4,095.00
	<hr/>
	\$5,398.67
Salaries	\$1,800.00
Rental \$25 per month	300.00
Miscellaneous	100.00
Postage	50.00
Attorney's Fees	150.00
President trip	100.00
Bulletin printed	1,000.00
Printing & mimeograph	100.00
Annual meeting expense	100.00
	<hr/>
	\$3,700.00
	<hr/>
	\$1,698.67

**JOURNAL:** The delegates were generally agreed that the mimeographed bulletin should be discontinued in favor of a printed journal; that the yearly proceedings be discontinued and the material be used in the new journal; that the money heretofore expended to publish the proceedings be applied to printing the journal; and that commercial advertising be included to help defray expenses. There was some discussion as to the number of issues per year, some thinking it should be quarterly and others bi-monthly.

**ACTION:** Upon motion duly made and seconded it was voted to be the consensus of the group that a Journal be published every two months for a trial period.

**ACTION:** Upon motion duly made and seconded, it was voted that Dr. Bell be made Editor of the

Journal for the coming year with power to appoint his own staff.

**POST GRADUATE LECTURES:** Delegates from the outside islands asked for a closer working arrangement between the county post graduate committees, that some arrangement be made whereby they may be better informed regarding lecturers brought from the mainland and that time be included in planning their itineraries for lectures on the outside islands. It was thought best for the time being to continue letting Honolulu County bring the lecturers to Hawaii with the respective county societies paying for the lecturer's transportation between the islands and his entertainment while on the island.

**ACTION:** Upon motion, duly made and seconded, it was voted that the President appoint a Post Graduate Committee of four members, with a representative from each island on the committee.

**REGISTRATION FEE:** It was brought to the attention of the House that the payment of the registration fee at the annual meeting was not yet generally understood. The President was instructed to clarify the matter by announcements at the beginning of the afternoon session and at all other opportunities, and a committee was appointed to assist Mrs. Bolles at the door in the collection of these fees. It was the understanding that all who take part in the annual meeting are expected to register and pay the fee.

**AUDITING OF BOOKS:** It was the general feeling that the auditing of the Association books should be handled in a more businesslike manner and that a public accountant be engaged to make the yearly audit.

**VICE PRESIDENTS AT ANNUAL MEETING:** A clarification was asked on the question of whether the vice-presidents qualified to sit in at the House of Delegates annual meeting be the presidents of the county societies who have served throughout the previous year, or the presidents newly elected at the county society annual meetings held just previous to the Territorial Annual Meeting.

It was the consensus of opinion that the newly elected presidents and delegates sit in at the House of Delegates meetings, and that these names appear on the annual program.

#### ELECTION OF OFFICERS

The following were elected to office for the year 1941-1942:

President—A. L. Craig.  
 Secretary—R. O. Brown.  
 Treasurer—Douglas B. Bell.  
 Councillors — S. R. Brown, Hawaii, for 3 years;  
 Lyle G. Phillips, Honolulu, for 3 years; Paul Withington, Honolulu, for 1 year.

The officers for the year 1941-42 are therefore as follows:

PRESIDENT:	A. L. Craig
VICE PRESIDENTS:	L. A. R. Gaspar
	W. N. Bergin
	T. W. Cowan
	B. O. Wade
SECRETARY:	R. O. Brown
TREASURER:	Douglas B. Bell
COUNCILLORS:	F. J. Pinkerton } 1 year
	Paul Withington } 1 year
	G. H. Lightner } 2 years
	Sam Wallis } 2 years
	S. R. Brown } 3 years
	L. G. Phillips } 3 years

Adjourned at 1:30 p.m.

Respectfully submitted,  
 A. L. CRAIG, Secretary

# THIAMINE HYDROCHLORIDE

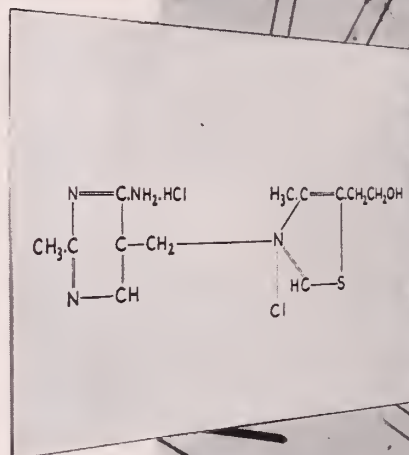
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The daily prophylactic dosage for the infant ranges from a minimum of 0.15 milligram to a maximum of 0.5 milligram. For the adult, the daily prophylactic dosage ranges from 1 to 3 milligrams.

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THE N.Y. ACADEMY  
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OF PULMONARY TUBERCULOSIS

STAFF OF THE LEAHI HOME

•

SYPHILIS AND NEUROSYPHILIS IN HAWAII

RICHARD DE MONBRUN KEPNER, M. D.

•

THE MENTAL HEALTH CLINIC

EDITORIAL

•

THE PLANTATION HEALTH PLAN

COMMENTS

POST GRADUATE LECTURES - DECEMBER  
JOHN MOORHEAD, M. D. - TRAUMATOLOGY





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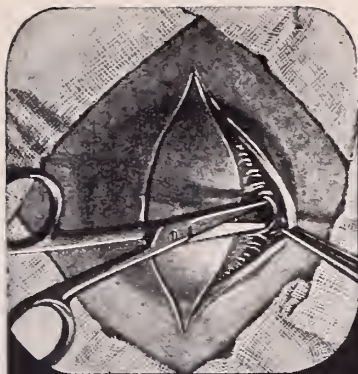
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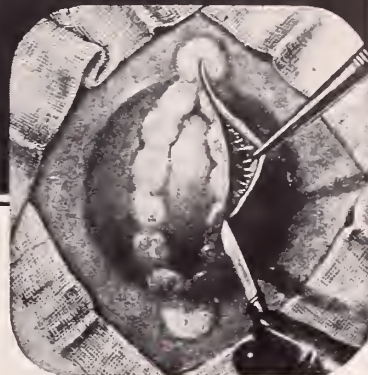
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# Hawaii Territorial Medical Association

1941-1942

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Vice Presidents:	L. A. R. Gaspar, Honolulu
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	B. O. Wade, Waimea, Kauai
	T. W. Cowan, Kahului, Maui
Secretary:	R. O. Brown, Honolulu
Treasurer:	Douglas B. Bell, Honolulu

## COUNCILLORS

	Term expires
F. J. Pinkerton	1942
Paul Withington	1942
G. H. Lightner	1943
Samuel Wallis	1943
S. R. Brown	1944
Lyle G. Phillips	1944

## DELEGATES

R. O. Brown	Honolulu	H. T. Rothwell	Honolulu
Guy C. Milnor	Honolulu	O. Lee Schattenburg	Honolulu
H. C. Gotshalk	Honolulu	A. H. Waterhouse	Kauai
J. E. Strode	Honolulu	Homer Izumi	Maui
N. M. Benyas	Honolulu	H. E. Crawford	Hawaii
Fred K. Lam	Honolulu	C. B. Brown	Hawaii

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# Extrapleural Thoracoplasty in the Treatment of Pulmonary Tuberculosis

REPORT OF A SERIES OF 105 PATIENTS

BY THE STAFF OF THE LEAHI HOME\*

Honolulu

Thoracoplasty has come to be recognized universally as an extremely valuable procedure in the treatment of pulmonary tuberculosis. A considerable amount of writing has been devoted to the various aspects of the subject. The operative technique has been fairly well standardized, although minor modifications are practised in the various clinics. Regarding the indications for thoracoplasty, however, there is less agreement. A wide range of opinion exists at the present day, some believing that the procedure is rarely indicated, while others feel that it should be used extensively, even in preference to pneumothorax or the other conservative forms of collapse therapy. Probably complete agreement with respect to indications will never be reached, so much being dependent upon each surgeon's abilities, the treatment facilities within the institution, the class of patient involved, etc. Somewhere between these two extremes of ultraconservatism and extreme radicalism lies the true field of usefulness for thoracoplasty; and it remains for each surgeon to determine, commensurate with his own abilities and the facilities provided for him, just where his particular focal point within this range will lie.

This paper is not designed to treat the subject of thoracoplasty with any degree of thoroughness. Our aim, primarily, is to report on a series of 105 patients subjected to thoracoplasty at The Leahi Home and to consider the results obtained as compared with other reported series. Also we wish to discuss certain of our concepts regarding the selection of patients for thoracoplasty, as well as certain features of the operative technique which we have found to be significant.

## THE SELECTION OF PATIENTS FOR THORACOPLASTY

There probably is no condition where the co-operative efforts of the internist and surgeon are so necessary for a successful outcome as in the

surgical treatment of pulmonary tuberculosis. In the selection of the individual for thoracoplasty it is necessary that the internist be familiar with all the various conservative methods of therapy and their indications for application, and he must have had sufficient clinical experience to determine when these conservative measures should be abandoned in favor of more radical procedures. Such a degree of fitness can only be acquired by one particularly interested in the subject and then only after years of association with the problems that surround the individual affected with tuberculosis.

As a general rule, the patients selected for thoracoplasty are those with moderately advanced or far advanced cavernous disease, in whom the lesions are predominately unilateral and productive in character, and in whom artificial pneumothorax or other suitable procedures have been tried.

Since thoracoplasty is designed primarily to produce a permanent collapse of diseased pulmonary tissue and to accomplish cavity closure, it is highly essential that there be reasonable assurance of attaining the desired result in the patients selected. In other words, the type and extent of lesion present should be such that collapse and closure of the cavity is possible with thoracoplasty. It must further be considered whether one or more operative stages can be performed with reasonable safety. To determine this requires prolonged study of the patient by the internist and surgeon who must appraise a number of factors, some of which will be discussed briefly.

First of all, with respect to the pulmonary disease, it is essential that the lesions be predominately productive or fibrotic rather than exudative, since the latter type usually progresses rapidly following thoracoplasty. Exudative lesions, when present, should be given time to become stabilized or controlled by preliminary collapse methods, such as pneumothorax, phrenic nerve paralysis or pneumoperitoneum. When a recent spread has occurred, considerable time should be allowed to

\*Grateful acknowledgment is made to the attending surgeons, Drs. James R. Judd, Joseph E. Strode and C. M. Burgess, for their part in the development of thoracic surgery at The Leahi Home.

elapse so that clearing and stabilization may take place before proceeding with surgery. In such instances it may be extremely difficult to decide how long one should delay. The contralateral lung, ideally, should be free from disease, but such a state is not common. The type of disease present in the opposite lung is as a rule of greater importance than the extent of disease. The lesions, if unstable, may require some form of collapse, preferably pneumothorax. Decision as to what contralateral lesions contraindicate thoracoplasty is at times exceedingly difficult.

Extrapulmonary tuberculous lesions in general do not constitute a contraindication to thoracoplasty, provided that such lesions are relatively inactive and are not hopelessly advanced. In fact, healing of the lung lesions not infrequently may lead to healing of the extrapulmonary lesions. Tuberculous tracheo-bronchitis, formerly considered an absolute contraindication to thoracoplasty, is no longer considered such if successive bronchoscopic examinations reveal the lesions to be stabilized or regressing. Bronchoscopy is performed routinely by us before thoracoplasty and may be repeated between stages if indicated.

The patient's general condition is a most important factor in determining the degree of operative risk. Surgery on patients in poor general condition is fraught with extreme danger. Occasionally such an individual can be saved from death, but the operative mortality in "poor risk" patients is so high that the advisability of thoracoplasty in this group is questionable. The argument that these patients have nothing to lose is perhaps true from the standpoint of that particular individual, but the surgeon must have in mind the effect produced by a high operative mortality rate on the morale of other patients. It is difficult, if not impossible, to state categorically what constitutes a poor general condition. One's clinical knowledge of tuberculosis together with a meticulously careful study of the patient are essential in evaluating the case to be selected.

It is important, in appraising the patient's condition, to give consideration not only to the question of operative survival but also to the possibility of his becoming a respiratory cripple as the result of the operation. Great pains must be taken to determine with certainty that the individual will be left with a sufficiently adequate functional respiratory reserve. Although a number of respiratory functional tests are used, none are entirely satisfactory. Vital capacity determinations alone

are inadequate and may be very misleading. Pre-operative dyspnoea, no matter how slight, is an extremely important danger signal. Such factors as extent of disease, amount of fibrosis, emphysema, pleural thickening and diaphragmatic dysfunction all contribute to some extent to decreased respiratory efficiency and consequently must be properly evaluated.

Considerable cardio-vascular reserve is essential. The effect of years of tuberculous toxicity upon the myocardium and vessels is well known. The determination of the patient's cardio-vascular reserve is not easy and may require prolonged study with the employment of all known tests. Exercise tolerance tests frequently give valuable information and should always be used. Certain symptoms and signs should be looked upon as danger signals.—slight dyspnoea, cyanosis and persistent tachycardia.

Finally, the non-tuberculous complications must be properly evaluated. Many of these, of course, present no problem, but certain conditions, such as syphilis, diabetes, nephritis and the psychoses, may present decided contraindications to thoracoplasty.

#### SURGICAL TECHNIQUE

As we have followed the progress of thoracoplasty over the last number of years, the thing that stands out as most important in keeping down the mortality rate is *not* to do too much at any one stage. There is no comparison of the dangers that exist between multiple-stage operations, where a few ribs are removed at each stage, and the extensive removal of ribs in an attempt to complete the job in one or two stages. Patients with tuberculosis, as a class, are poor operative risks. By the time they come to thoracoplasty they have suffered from their disease usually for several years. They have spent much time in the hospital with necessarily restricted activity, and this, combined with the debilitating effects of their disease, has lowered all their defensive mechanisms. To attempt to carry out surgical procedures in such individuals in the same manner as one is accustomed to on patients in good physical condition entering a general hospital is to invite disaster. One must ever fit the operation to the patient and one must never attempt to reach a certain objective at a given time, regardless of how physically fit the patient is to withstand the ordeal.

In our first stage operation, a generous incision is made just below the top of the shoulder, down-

wards mid-way between the spinous processes and the shoulder blade to the anterior axillary line. The exposure is made slowly so that all bleeding points can be clamped to avoid more than minimum loss of blood. The skin is excluded by clamping towels to the skin edges. Ten per cent formalin is applied routinely to the periosteal rib beds to delay rib regeneration between stages. At the first stage we rarely do more (and seldom less) than remove the first two ribs. Removing the second rib first gives better approach to the first rib; and both the first and second ribs are removed anteriorly to include the cartilage. Posteriorly, the transverse process of the second rib, or at least most of it, is resected, whereas the first rib is removed only to the transverse process. Great care is exercised in removing the first rib in order to avoid injury to the brachial plexus and the neighboring vessels. So far we have never had the misfortune to damage these structures, but we are constantly aware of the possibility.

At times, depending upon the underlying lesion, the apex of the pleura is mobilized and pushed down. If there is considerable rigidity of the underlying pleura preventing good collapse of the apex, if the patient is in satisfactory condition and likely to need extensive rib removal, all or a portion of the third rib may be resected. Not more than three ribs are removed at the first stage.

A very effective means of controlling oozing from severed bone or other areas is to cover the region with a piece of muscle removed from the incision or from an intercostal muscle bundle.

Bleeding from vessels of any size is carefully controlled by ligature. Fine plain catgut is used for ties, the deep layers are closed with two rows of continuous silk. All stages are sutured tight continuous #1 chromic catgut, and the skin with without drainage.

The second stage operation is carried out when the patient has made a satisfactory recovery from the first one, usually within three or four weeks. The same incision is opened in the lower three-fourths and two or three more ribs are removed short of the anterior extensions. The lower stages of thoracoplasty are done in a manner which will leave more of the rib anteriorly, depending of course, on the extent and nature of the lesion being dealt with. So, also, is the number of stages governed by the underlying lung pathology.

The three points we particularly want to emphasize in considering the purely technical side of thoracoplasty are:

1. Meticulous attention to asepsis. Any infection is a thoracoplasty, unless it be limited to the skin, is a major disaster. It necessitates laying the incision wide open, causes a prolonged period of healing, debilitates the patient and delays the completion of subsequent stages indefinitely.

2. Meticulous attention to the control of hemorrhage. Depending upon its extent, it may, and frequently does, result in infection, it exsanguinates the patient, and may necessitate opening the incision, thus adding a great burden on the patient, as well as delaying subsequent operations.

Fig. 1 and 2—Anterior and posterior views of patient showing the operative scar and anterior compression below the clavicle. Despite the degree of collapse there is practically no functional deformity of the shoulder girdle.





3. Conservatism in the extent of each operation. The sum total of dangers from shock, hemorrhage, infection and anesthesia, in multiple stages, is less than the disaster invited by attempting to do more than the individual is physically able to stand at one time.

## RESULTS

The tables which follow show the results of thoracoplasty done in the Leahi Home up to the middle of July 1941 and are compared with similar figures obtained from large institutions on the mainland. Thoracoplasty for the treatment of tuberculosis has been done in the Leahi Home since November 1929. Early figures very markedly up to the year 1939, but from then on, with the acceleration of the program year by year and a realization of the value of thoracoplasty in the treatment of the disease, they become more accurate. In 1940, of the 705 tuberculous patients treated in the Leahi Home, 27 were subjected to thoracoplasty. Thus, 3.8% of all tuberculous cases treated during that year underwent thoracoplasty. This utilization of the operation was somewhat low since many of the more progressive mainland institutions report that from 5 to 10% of their tuberculous patients are found suitable for thoracoplasty. Hesitancy of patients to accept the operation is no longer an obstacle in our work here, and our inability to fully utilize its value is now largely a matter of limited time and facilities.

TABLE I  
OPERATIVE DEATHS

	<i>Coryllos</i> 1931-36	<i>O'Brien</i> 1932-38	<i>Leahi Home</i> 1929-41
Number of patients operated on	529	511	105
Number of stages	1,275	1,404	263
Deaths	97	98	12
Fatality per patient	18.3%	19%	11.43%
Fatality per stage	7.3%	6.9%	4.56%

The deaths and fatality percentages here refer to total post-operative plus late deaths. The operative fatality (5 deaths in 263 operations) was 1.9%; the comparable percentage obtained by O'Brien was 3.4%.

TABLE II  
OPERATIVE RESULTS

	<i>Coryllos</i> No. %	<i>O'Brien</i> No. %	<i>Leahi Home</i> No. %
Thoracoplasty Patients	529 100	511 100	105 100
Discharged Sputum Negative	250 47	309 60.3	46 43.8
Still in Hospital	163 28.5	88 12.2	47 44.7
Sputum Negative	84 14.5	43 6.0	28 26.6
Sputum Positive	79 13.5	45 6.2	19 18.1
Dead	97 18.3	98 19.0	12 11.4

The large number of cases still in the hospital in the series reported from Leahi Home is accounted for by the fact that many are recently completed and uncompleted cases.

TABLE III

	SPUTUM CONVERSIONS				<i>Leahi Home</i>	
	<i>Coryllos</i> No.	%	<i>O'Brien</i> No.	%	No.	%
Pos. sputum at 1st stage thoracoplasty	529	100	495	100	101	100
Neg. sputum after last stage	357	67.5	365	75.1	74	73.26
Pos. sputum after last stage	75	14.1	82	16.5	19	18.8
Conversions (neg.) excluding operative deaths			447	81.65	96	77.08
			365		74	

TABLE IV

RESULTS ACCORDING TO STAGE OF DISEASE

	THE LEAHI HOME				Total
	Minimal	Mod.	Adv.	Far. Adv.	
Total	6	38	61	105	
Per cent	5.7	36.2	58.1	100	
Alive	5	34	54	93	
Dead	1	4	7	12	
Fatality per cent		10.5	11.5	11.4	
	CHICAGO MUNICIPAL				Total
Total	8	50	226	284	
Per cent	2.8	17.6	79.6	100	
Dead	3	7	44	54	
Fatality per cent		14	19.5	19	

To evaluate more accurately the results presented in the tables, a suitable yard-stick is found in the results of the treatment of 1,641 patients at The Leahi Home in the eight consecutive years from 1932 to 1939, inclusive. The mortality among patients admitted at the minimal stage of tuberculosis in this group was 5.8%; among moderately advanced cases 16.5%, and among far advanced 59%. Especially in the far advanced cases it will be seen that in those cases treated by thoracoplasty the mortality has been significantly lowered. Our results may be divided into two six-year periods. During the first of these, ending in January 1936, there were 5 post-operative deaths. There were also 7 late deaths which may more reasonably be ascribed to unchecked tuberculosis. During the latter six years there have been no post-operative deaths and no late deaths.

Finally, it must be emphasized that a very large number of patients treated in The Leahi Home are readmissions and that the problem of readmission is a constant source of anxiety to the hospital staff and to the patient. In the group of thoracoplasties under consideration, readmission prior to the operation was common; subsequent to thoracoplasty, readmission occurred in only 3 patients and in none of these could reactivation of tuberculosis be proven.

# Epidemic Infectious Conjunctivitis

W. JOHN HOLMES, M.D.

Honolulu

During the summer of 1941 there occurred on Oahu a rapidly spreading type of acute conjunctivitis referred to by the patient and his physician as "pink eye." The extreme contagiousness of the disease suggested that it might be assuming epidemic proportions.

Repeated cultures and smears made from conjunctival scrapings and secretions of the first group of fifty unselected cases failed to reveal the presence of any offending organism. In the absence of a specific causative germ, the Bureau of Communicable Diseases of the Board of Health felt that the condition was not reportable. No accurate figures are available, therefore, concerning the number of cases.

## ETIOLOGY

The causative factors of this disease are very much in doubt. It is surmised that a virus is the underlying etiologic agent. The swimmer is convinced that his infection started while swimming in contaminated water; the worker in the pineapple cannery blames his on accidentally getting pineapple juice in his eye; the worker at the emery wheel is certain that his attack began when a piece of dust landed in his eye; and the patient with pre-existing ocular disease feels that his eye was so weakened by his current malady that "pink eye naturally settled in it."

In all of these instances there is the common factor of rubbing the eyes with unclean fingers. Infection in all of them could well have been carried to the eye by direct contact with the hands. The hand-to-eye and eye-to-hand type of transmission is further suggested by the involvement of the second eye in three-fourths of the cases, and the presence in many instances of more than one member of a family with the same disease.

Contributing toward the propagation of the disease is the recent great increase in military and naval personnel and men engaged in defense projects, living and working in close contact with one another.

The first few patients were workers at the Pearl Harbor Navy Yard. Soon sailors and resi-

dents of the adjacent Aiea district came down with similar clinical pictures. At the end of June, the disease was fairly widespread and people from all walks of life, irrespective of age, sex, and race, were stricken.

At the present writing, new cases are still coming in, but it is felt that the peak has been reached.

## CLINICAL PICTURE

The symptomatology is quite uniform. After an incubation period of two to five days, tearing, burning, redness, some pain, sensitivity to light and foreign body sensation developed. The last of these was the most annoying of the subjective symptoms. Pain was never a prominent complaint. On ocular examination the vision at the onset was normal, though patients were often reluctant later to read the smaller letters of the test print because of profuse tearing and sensitivity to light. The upper lids were usually reddened and somewhat swollen. A moderate degree of blepharospasm was encountered in many instances. The palpebral conjunctivae were intensely reddened, edematous, and congested. The bulbar conjunctivae similarly were injected, though usually not to the same extent. A characteristic and almost pathognomonic finding was the appearance of multiple subconjunctival hemorrhages occurring on the tarsal portions of the conjunctivae. In a few instances they were larger and more extensive, involving most of the globe. In most cases there was either no discharge or only a very scant one. Preauricular adenopathy was noted in about fifty percent of the cases.

## COMPLICATIONS

Ciliary injection often accompanied the superficial inflammation. The most common complication was the development of corneal infiltrates. These lesions consisted of minute, opaque, grayish dots involving for the most part the second layer of the cornea. Some extended into the deeper structures. The number of dots varied from 1 to 100. They assumed various shapes, but were usually round. They were arranged in

groups or rows, scattered irregularly, but more commonly located on the central portions of the cornea. In most instances they did not stain with fluorescein.

With the aid of the slit lamp it was possible to discover minute deposits forming a faint haze on the basal layers of the corneal epithelium in many patients who had a more severe type of conjunctival involvement.

With the development of the corneal lesions, vision was correspondingly reduced. Patients at this stage complained of seeing halos around lights.

#### COURSE

The disease pursued a leisurely clinical course. In the absence of corneal complications, the average duration was 2 to 3 weeks. When corneal infiltrates developed, the eyes remained irritable for 4 to 6 weeks or longer.

The disability varied. Many were able to carry on with their work during the entire duration of the disease. Others complained of symptoms of such severity that 1 to 6 weeks elapsed before they were able to resume their occupations.

#### TREATMENT

The remedies usually employed in the conjunctivitis stage were more or less ineffectual. Keeping the patient in a dark room proved most beneficial. Cold compresses afforded more re-

lief than hot applications. Eye drops were of no particular benefit. Among those tried and discarded were solutions of Argyrol (10-20%), Protargol (5-15%), Mercurochrome (1-2%), mercuric oxycyanide (1:5000), Metaphen (1:3000), zinc sulphate (0.25%), and Zephiran (1:3500). Painting the conjunctival surfaces with 0.5% to 2% strengths of silver nitrate or with the alum stick aggravated the existing inflammation. Bland lotions and ointments were used for symptomatic relief.

Intravenous injections of typhoid vaccine and intramuscular injections of boiled milk were of no avail. Sulfathiazole and sulfanilamide were tried by mouth and by local instillation into the conjunctival sac, without apparent effect, except that subjective improvement was reported by two patients after the oral administration of sulfanilamide.

Cases with complications were treated with homatropine (2-5%), atropine (1%), and Dionin (2-5%). A 1% solution of potassium iodide containing 1 or 2 minims of compound solution of iodine USP to the ounce seemed to hasten the absorption of the corneal infiltrates.

#### SUMMARY

An epidemic of an acute, contagious type of conjunctivitis occurring in Honolulu in the summer of 1941 is described. Attention is called to the frequency of corneal complications. Several forms of therapy are discussed.

Young Hotel Building.

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#### "PAGET'S DISEASE"

The ancient but unfortunate practice of the medical profession of naming a disease by the name of the man who first described it has an interesting example in the case of Sir James Paget. Of the three Paget's diseases, two were first described by him: Paget's disease of the bone (osteitis deformans) and Paget's disease of the nipple. Sir James Paget was born in England in 1814 and died in 1899 at the age of 85. He was 60 years old when he first published his paper on disease of the mammary areolas preceding cancer of the mammary gland and 62 years old when he wrote his famous article on a form of chronic inflammation of bone—osteitis deformans. This condition had previously been described by Czerny, Schmidt and Volkmann. Paget's description, however, was so extremely complete and so clear cut, and his

description of the picture so exact, that his name is properly applied to the disease. Naturally, his knowledge of the condition was based entirely upon clinical observations and autopsies, since the x-ray study of bone was yet many years ahead. Paget's disease of the bone is a well-recognized clinical entity today, and the need for differentiating it from the osteomalacia due to hyperparathyroidism is a very real one. Paget's disease of the nipple, however, is not nearly as clear cut a picture as he considered it to be. It is still a matter of acrimonious discussion among authorities as to whether it is a primary squamous cell epithelioma, a carcinoma developing from the ducts in the nipple or perhaps the sweat ducts in the skin, or an adenocarcinoma beginning deep in the breast, and making its first appearance along the duct and finally invading the skin. It is a term that might well be dropped from clinical-pathological conferences and kept only as an interesting historical association.



# Syphilis and Neurosyphilis in Hawaii

## Incidence and Results of Treatment in the Territorial Hospital for Mental Disorders

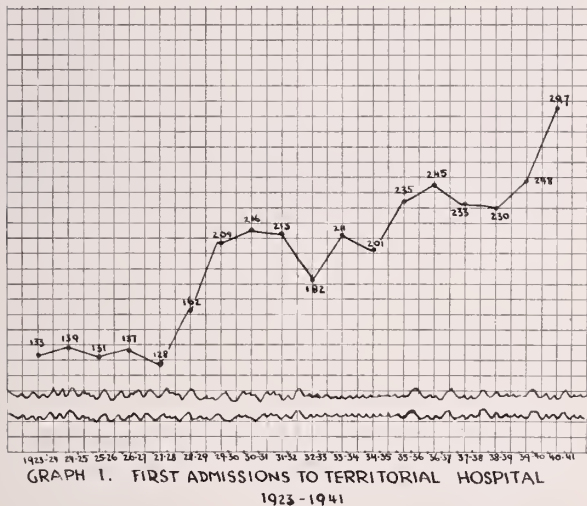
RICHARD DEMONBRUN KEPNER, M.D.

Kaneohe, Oahu

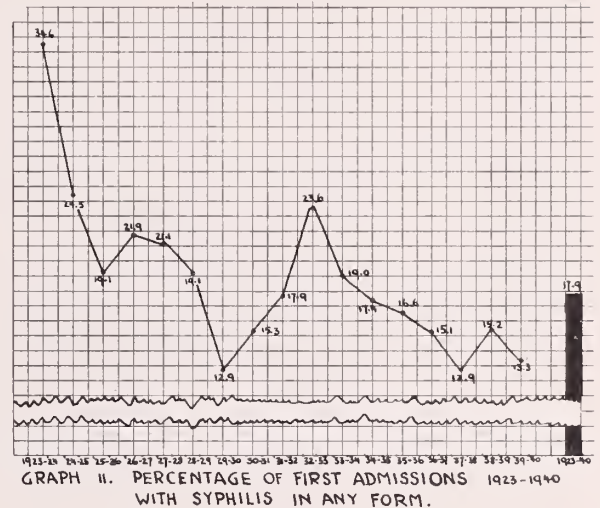
Questions about syphilis in the Territorial Hospital for mental diseases have been so numerous that it seemed worthwhile to prepare certain data which are herein presented. Part of this material was presented by the author<sup>1</sup> at a meeting of the Honolulu County Medical Society in 1938. No comparable paper has been published, although one comprehensive survey of the venereal disease problem in the Territory has been made.<sup>2</sup>

This paper reviews the incidence of syphilis in patients admitted to the Territorial Hospital for the first time over the period 1923-1940, and attempts to evaluate the results of therapy in those with central nervous system involvement, especially the paretics.

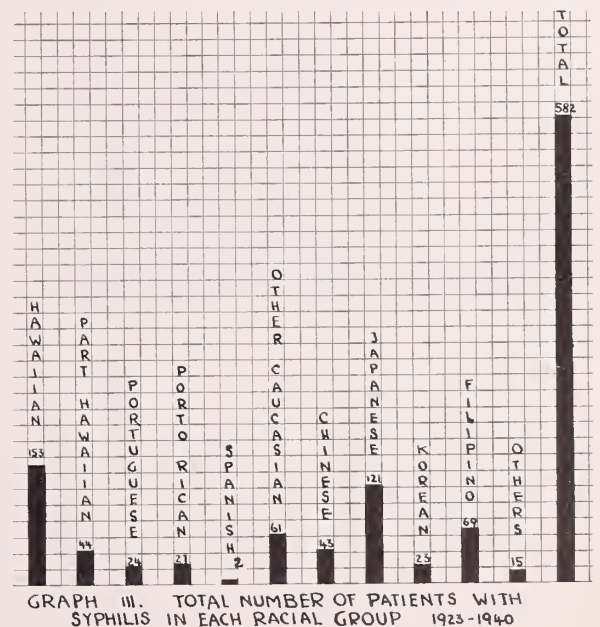
The increase in admissions<sup>3</sup> of patients to this hospital over this period is shown in Graph I.



The percentage of syphilis in these first admissions has shown on the whole a gradual decline since 1923. Of all first admissions (a total of 3253) to the Territorial Hospital from July 1, 1923, to June 30, 1940, the percentage with syphilis in one form or another was 17.9%. By years this percentage is shown in Graph II.

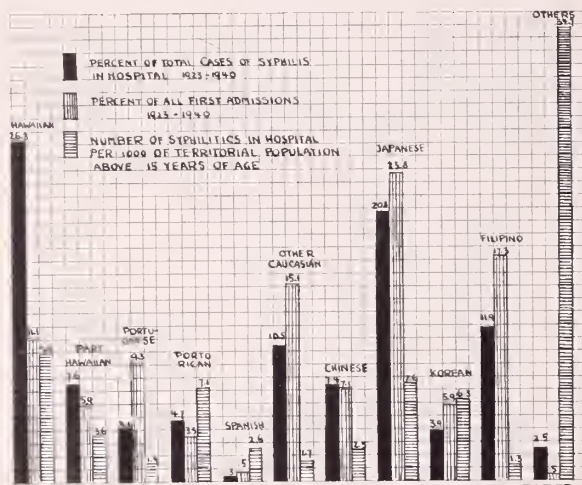


The incidence of syphilis among first admissions by groups is a question brought up frequently. The 582 cases of syphilis found in all first admissions between 1923 and 1940 were distributed according to race groups as shown in Graph III.



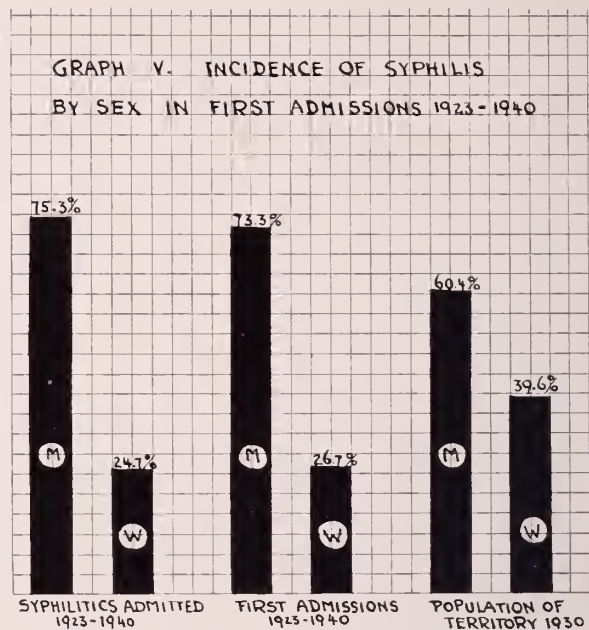
When the figures showing the number of cases of syphilis in each racial group are compared with the number of first admissions in that group they do not necessarily reflect the true incidence of syphilis in the population of any one race. A comparison has been made, therefore, of the number of syphilitics in each race in the Territorial Hospital, with the number of that race in the general population<sup>4</sup> outside. For this comparison, only persons fifteen years of age and over of that race group in the general population of the Territory have been taken because this older group is more comparable in age with the patients in the hospital. For comparison with the hospital's 1923-40 figures, the 1930 population of the Territory has been used since this is almost midway in point of time and is also about average for the population over that period.

Graph IV then shows three sets of figures for the period 1923-1940: (1) the percentage of the total number of cases of syphilis furnished by each race group; (2) the percentage of the total number of first admissions furnished by each race group; and (3) the number of first admissions with syphilis in each race group per 1000 of that race group, fifteen years of age or over, in the general population outside the hospital.

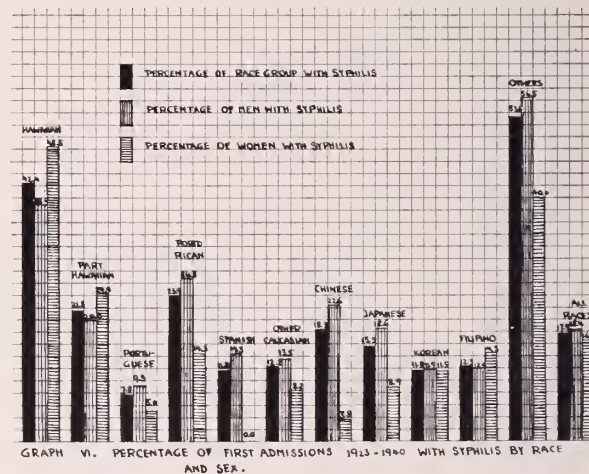


GRAPH IV RACIAL DISTRIBUTION OF SYPHILIS 1925-1940 AS COMPARED WITH FIRST ADMISSIONS AND WITH THE TERRITORIAL POPULATION.

The incidence of syphilis by sex was as follows: of the 582 cases, 438 were men and 144 women. Men thus accounted for 75.3% and women for 24.7%. This sex ratio is compared in Graph V with first admissions during 1923-1940 and with the population of the Territory.



Of all first admissions in each race group, the percentage, total and by sex, with syphilis is shown in Graph VI.



The total number of syphilitics in first admissions was 17.9%. Division of this number into cases with and without central nervous system involvement is shown in Graph VII.

There is apparently a downward trend in the relative number of syphilitics with central nervous system involvement. By years, the annual incidence in first admissions of general paresis, other forms of syphilis of the central nervous system, and syphilis without demonstrable involvement of the central nervous system is shown in Graph VIII.



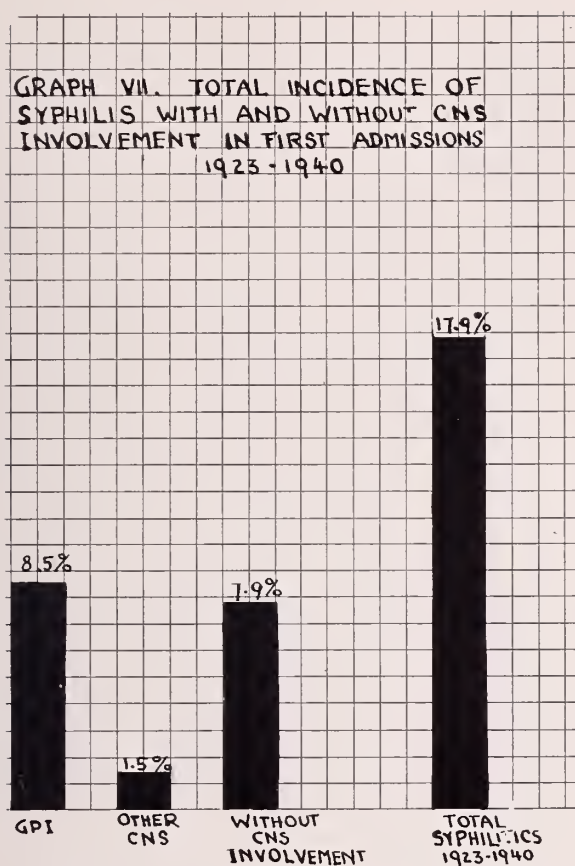
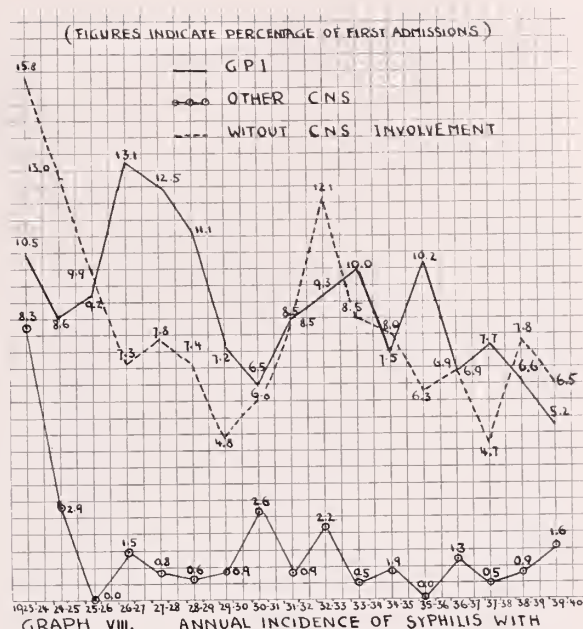


Table I shows the percentage of the syphilitics in each race group, by sex and by total, that have developed neurosyphilis. Although the total numbers are small, it would seem that the Filipino and Korean have, for reasons unknown, developed less neurosyphilis than other races.

The incidence of neurosyphilis in this hospital seems to compare favorably with that in mainland hospitals. The first admissions with neurosyphilis here, by sex and total, as compared elsewhere (5, 10, 11, 12, 14) for the given periods, are shown in Table II.



GRAPH VIII. ANNUAL INCIDENCE OF SYPHILIS WITH AND WITHOUT NERVOUS SYSTEM INVOLVEMENT

TABLE II  
GPI

Place	Years	Men	Women	Total
Terr. Hosp.	1923-40	8.9	7.5	8.5
Terr. Hosp.	1937-38	8.1	6.8	7.7
Terr. Hosp.	1939-40	7.0	0.0	5.2
U. S. A. State Hosp.	1937	9.9	4.6	7.7
N. Y. State Hosp.	1938	10.3	3.6	7.1
N. Y. State Hosp.	1940	9.4	3.2	6.5
Mass. State Hosp.	1917-33	?	?	6.1
(Dayton)				
Mass. State Hosp.	1917-39	8.0	2.4	5.4
Mass. State Hosp.	1939	5.4	1.4	3.7

OTHER CNS SYPHILIS

Place	Years	Men	Women	Total
Terr. Hosp.	1923-40	1.5	1.2	1.5
Terr. Hosp.	1937-38	0.6	0.0	0.4
Terr. Hosp.	1939-40	1.6	1.6	1.6
U. S. A. State Hosp.	1937	1.6	1.1	1.4
N. Y. State Hosp.	1938	?	?	1.4
N. Y. State Hosp.	1940	?	?	1.3
Mass. State Hosp.	1917-33	?	?	0.8
(Dayton)				
Mass. State Hosp.	1939	0.5	0.3	0.4

TABLE I

RACE	GPI			OTHER CNS			WITHOUT CNS INVOLVEMENT		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Hawaiian	50.0	55.4	52.3	10.2	6.1	8.5	39.8	38.5	39.2
Part Hawaiian	54.2	35.0	45.5	4.1	15.0	9.1	41.7	50.0	45.4
Portuguese	66.7	66.6	66.6	5.5	16.7	8.4	27.8	16.7	25.0
Porto Rican	52.2	50.0	51.8	8.7	0.0	7.4	39.1	50.0	40.8
Spanish	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0
Other Caucasian	51.0	40.0	49.2	15.7	0.0	14.7	33.3	50.0	36.1
Chinese	53.7	50.0	53.5	7.3	0.0	7.0	39.0	50.0	39.5
Japanese	58.6	27.3	52.9	4.0	4.5	4.1	37.4	68.2	43.0
Korean	30.0	33.3	30.5	10.0	0.0	8.7	60.0	66.7	60.8
Filipino	27.1	30.0	27.5	6.7	0.0	5.8	66.2	70.0	66.7
Others	23.1	50.0	26.7	23.1	50.0	26.7	53.8	0.0	46.6
Aggregate All Races	48.4	45.1	47.7	8.4	7.6	8.1	43.2	43.2	44.2



Most of the patients suffering from neurosyphilis in this hospital have been admitted because their conduct and behavior were so altered by organic disease of the brain that they were unable to adjust themselves in the community. Of course, a few cases were sent in because of alcoholism and were found on careful examination to be suffering from neurosyphilis. Most patients with syphilis showing no evidence of involvement of the nervous system give no history of infection, and are found to be suffering from syphilis only after routine Wassermann examination. These tests have been done continuously since the latter part of 1922. Actually a few of the syphilitics listed in 1923-24 had been admitted prior to that year, however, these were so few as not to be statistically significant.

#### TREATMENT

As regards the treatment of syphilis, the remarks and figures noted hereafter will be confined chiefly to neurosyphilis inasmuch as the treatment of ordinary, uncomplicated and visceral syphilis is well known to the ordinary practitioner. For a patient found to be suffering from syphilis, treatment is instituted along more or less definite lines, provided the patient is in condition to tolerate it and does not experience unfavorable reactions therefrom.

Syphilis showing no involvement of the nervous system, as evidenced by altered serology in the spinal fluid or by neurological signs, is treated with bismuth, mercury, potassium iodide, neoarsphenamine, sulpharsphenamine and mapharsen, in the usual manner.

The cases of meningo-vascular syphilis, which make up about 1.5% of the admissions, or about 8.4% of the total number of syphilitics, are treated with heavy metals, and the arsenicals and iodides. If no improvement followed in six months it is customary to treat with tryparsamide, or fever therapy, or both.

The meningo-encephalitic or parietic type, with involvement of the brain substance itself, is treated by a combination of tryparsamide and fever therapy in addition to routine chemotherapy. It is customary to give tryparsamide in doses of three grams a week for courses of at least three months provided visual fields and visual acuity permit. Fever therapy in conjunction with chemotherapy has been given for the past eight years in many of these cases.

Two methods of fever therapy have been employed. One has been intravenous typhoid shock therapy as suggested by Nelson.<sup>15</sup> This consisted of two doses of a standard typhoid-par-

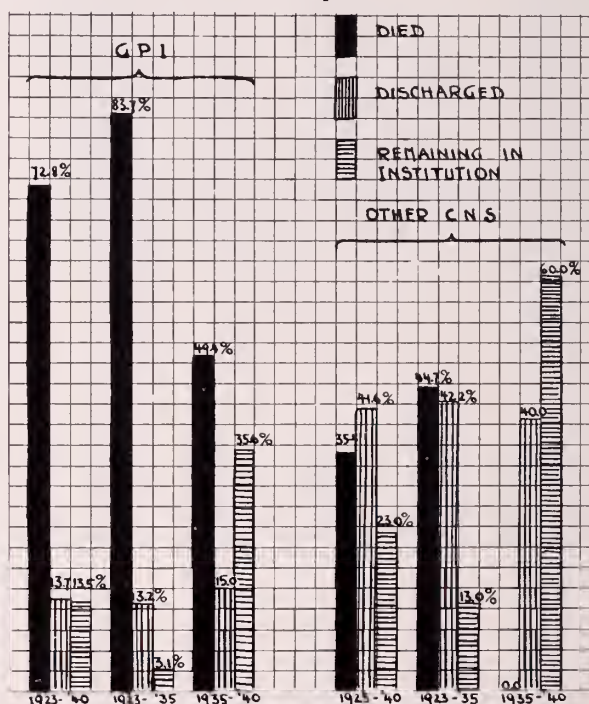
typhoid mixed vaccine every other day for ten fever days, the dosage on fever days being increased from 100,000,000 twice up to 1,000,000,000 twice.

The other method has been inductotherm<sup>16</sup> in which electrically-induced hyperpyrexia is given once or twice a week for at least four or five hours of fever between 105 and 106 degrees rectal. Of late, it has been the custom to maintain the temperature between 106 and 107 degrees for at least two hours of each treatment. The number of treatments given to each case has been ten in the earlier ones treated and twenty in the later cases if they tolerated them well. Paretics who do not tolerate treatment in the inductotherm and those whose eye grounds and visual acuity do not permit the use of tryparsamide are treated with mapharsen, neoarsphenamine, and heavy metals in conjunction with iodides. Of course, occupational therapy and psychotherapy are also employed as indicated in the various cases.

#### RESULTS

No particular attempt has been made to evaluate in detail the results of treatment for syphilis other than that involving the nervous system. Cases of neurosyphilis other than paresis total 8.4% of the luetics admitted; about two-thirds of these had meningo-vascular syphilis.

The percentages of neurosyphilitics who died, were discharged, or remained in the hospital, 1923-40 are shown in Graph IX.



GRAPH IX. FINAL DISPOSITION OF PATIENTS WITH NEURO SYPHILIS 1923-1940

The length of stay in the hospital, that is, the average hospital stay (which in most instances was the total duration of all treatments both in and out of the hospital) of neurosyphilitics who were discharged or died from 1923-38 is shown in Table III.

TABLE III

Type of Neurosyphilis	Discharged	Died	Remaining in Hospital
GPI	7 months	11 months	2 yrs. 11 months
Other CNS	11 months	12 months	5 yrs. 1 month

These figures suggest that improvement, if it is to be obtained, will usually be apparent in the early months of treatment.

The results of treatment of neurosyphilis by the various methods are compared in Graph X. These figures are based on the evaluation of the condition of 139 such patients treated by various methods during the period July 1, 1929 to June 30, 1939. (These patients were nearly all paretics, although a few were included with other forms of syphilis of the nervous system.) Fifty-two others are omitted because the records of treatment were

not available. It should be noted that none of our neurosyphilitics are shown as recovered, in observance of the policy of this hospital.

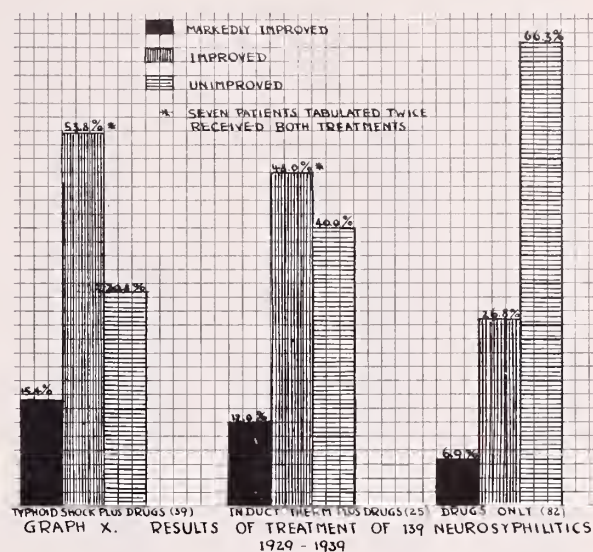


TABLE IV

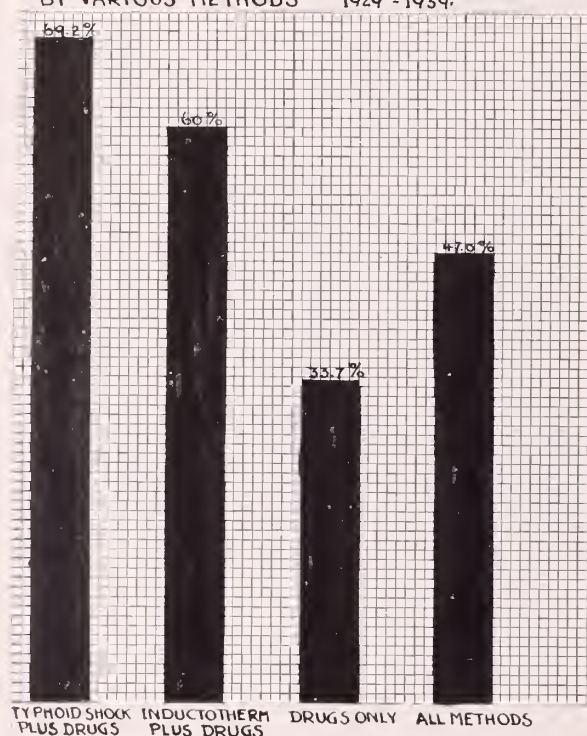
	Patients under Treatment	First and Readmissions	DISCHARGES					Discharges per 100 of Admissions	Deaths	Deaths per 1,000 under Treatment
			Total	Recov'd	Much Imp.	Improv.	Unimp.			
Territorial Hosp. 1930-40	39	18	6	—	—	5.5%	27.8%	33.3%	9	230.7
Territorial Hosp. 1938-39	39	15	4	—	—	20.0%	6.6%	26.7%	6	153.8
N. Y. State Hosp. 1938	4,791	1,022	395	76	—	31.2%	—	38.6%	532	11.0
N. Y. State Hosp. 1936	4,563	1,138	375	39	222	7.1%	3.0%	33.0%	499	109.3
Massachusetts State Hospitals 1938	477	188	75	X	X	X	X	39.9%	70	147.0
Worcester, Mass. State Hosp., 1938	142	34	7	—	—	11.7%	8.9%	20.6%	18	126.7
Alabama State Hospital, 1939	X	62	40	3	—	67.7%	6.5%	79.0%	34	X
U. S. State Hospitals, 1937	X	5,149	2,496	278	—	36.6%	6.5%	48.4%	3,421	X
U. S. State Hospitals, 1936	X	6,771	2,213	291	—	24.0%	4.1%	32.4%	3,452	X
U. S. State Hospitals, 1935	X	6,487	2,149	248	—	24.0%	4.5%	33.1%	3,322	X
U. S. State Hospitals, 1934	X	6,431	1,992	244	—	23.2%	4.0%	31.1%	X	X

X Data not available.



The total percentage of neurosyphilitics improved by the various methods of treatment is shown in Graph XI.

GRAPH XI. PERCENTAGE OF NEUROSYPHILITICS IMPROVED AND MUCH IMPROVED AFTER TREATMENT BY VARIOUS METHODS 1929-1939.



The results of treatment of paretics here as compared with results in other hospitals (5, 6, 7, 8, 9, 10, 13, 17, 18) are shown in Table IV.

Obviously, the results here are on a smaller scale than some of these other figures and yet it would seem that they are comparable after a fashion. The figures in this hospital indicate without question the fact that fever plus chemotherapy was vastly superior to chemotherapy alone; nevertheless, the results are not as good as those reported by certain workers elsewhere. In an attempt to explain this, an analysis of our admissions during the past five years was undertaken. It was found that a number of neurosyphilitic patients were in poor condition for treatment for reasons other than their syphilis. The condition of seventy-eight paretics on admission 1934-39 was as follows:

Tuberculosis	2
Heart disease	2
Lung abscess	1
Debility	8
Age 60 to 77 years	9
Moribund	1
Total poor risks	23 or 29.5%
Juvenile type	4 or 5.1%
Demented or dementing types	75.5%

The juvenile types are listed because of their notoriously poor prognosis. The demented or dementing types are listed because they are generally considered more unfavorable from the point of view of treatment since their brains are probably already badly damaged, although it is known, of course, that the clinical picture does not necessarily reflect the degree of brain damage.

In the treatment of paresis, most authorities agree (19, 20, 21, 22) that some type of fever therapy plus trypanamide, is indicated, although a few feel that the danger to the eyes from trypanamide is greater than the possible benefit to be gained. As to the exact type of fever to be employed, there is a great deal of disagreement. Some workers<sup>23</sup> believe that malaria is superior to the inductotherm and the hypotherm, and others claim to have proven that the inductotherm and the hypertherm are superior to malaria (16, 22). I have felt for a number of years that malaria is a splendid method of treatment for these cases. Since malaria is not available here, in observance of the policy of the Board of Health, it is necessary to use physically induced fever. It appears that the results shown warrant the continuance of its use.

It is suggested that earlier treatment of paretics, before irreparable damage has been done to the brain parenchyma, would improve our results although we can never hope to match the figures obtained in the private practice and out-patient service of some workers. To that end it is suggested that every patient with syphilis have a spinal puncture at least once in the course of his treatment, preferably in the first year of the disease, and another when his treatment is concluded. The first puncture may well be done in early syphilis at the end of six months of treatment, that is, after the second course of arsphenamine.<sup>19</sup>

Invasion of the nervous system probably occurs in all patients recently infected with syphilis.<sup>19</sup> Abnormalities of the spinal fluid may be found in as high as 50 to 75 per cent of patients with untreated early syphilis within the first year after infection. If spinal fluid abnormalities are present in the absence of clinical evidence of neurosyphilis the condition is known as asymptomatic neurosyphilis. These abnormalities antedate the appearance of obvious clinical damage in the nervous system by many years thus the potential parietic or tabetic patient is recognizable within the first year of the infection, rather than fifteen years later, when irreparable harm may already have been done.



In one group<sup>24</sup> made up of patients with early and late syphilis, only 3.6% of those with normal spinal fluids developed definite or questionable evidence of neurosyphilis (in all instances, meningeal or meningo-vascular in type). Of patients with paretic formulae in the spinal fluid, 73% developed neurosyphilis, and 30% of those with paretic formulae developed tabes dorsalis and general paresis. Of the patients with intermediate changes in the spinal fluid, 32% developed neurosyphilis.

Abnormalities of the spinal fluid are said<sup>19</sup> to be much more frequent after irregular treatment of early syphilis than when it is carried out without interruption.

Any patient under treatment for syphilis who displays unusual irritability, slowness in thinking, loss of weight, forgetfulness, sleepiness, speech defect, insomnia, judgment defects, fatigability, digestive defects, marked impairment of vision, occasional headaches, or rheumatoid pains, should have a spinal puncture. These are the symptoms listed by Ebaugh as most frequently found in neurosyphilis.

In conclusion, I wish to reiterate the fact that syphilis is a disease encountered by all practitioners and one which may result in serious disease of the nervous system. To reduce to a minimum the development of neurosyphilis with its devastating results, it is necessary to treat early syphilis adequately. If, in addition, signs and symptoms of neurosyphilis are watched for carefully, it will be possible to institute proper therapy early thereby adding many useful and productive years to the lives of those so afflicted.

#### SUMMARY

1. A survey of the incidence of syphilis and neurosyphilis in the Territorial Hospital 1923-40 is presented.
2. This incidence has been analyzed by race and sex, and has been compared with figures in similar hospitals elsewhere.
3. The modes of treatment employed and their results have been studied and compared with those elsewhere.
4. An analysis of our admissions is presented which shows that three-fourths or more of our neurosyphilitics have been of such types or in such condition upon admission that their prognosis was of necessity expected to be poor.
5. It is urged that all syphilitics be treated intensively early in the course of the infection, and that repeated spinal fluid and neuropsychiatric examinations be done so as to detect nervous system involvement before irreparable damage has been done.

Territorial Hospital Kaneohe, Oahu  
Much of the statistical work herein presented was done by Mr. Arthur E. Holland whose services were kindly made available to us by Major Peter Bermel of the Works Progress Administration.

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# Kidney Injuries

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The management of kidney injuries is a highly controversial subject in this community as elsewhere. It would seem that a clearer understanding of the pathologic changes and the proper approach to their clinical identification might promote somewhat greater uniformity of opinion as to the proper procedure in any given case.

The immediate consequences of application of force to the kidney region may be (1) hemorrhage, (2) extravasation of urine, (3) infection (hematogenous, or retrograde from the bladder), (4) death of the kidney, and (5) death of the patient, from hemorrhage or infection or both.

These are accompanied by the well-known major clinical signs and symptoms: local pain, followed by nausea and vomiting; and primary shock, which may be severe (but it is wise to keep in mind that this shock may be due only to stimulation of the solar plexus by the blow and not necessarily to injury to the kidney itself). Hematuria is the cardinal sign, and it may be all out of proportion to the extent of the injury. Severe injuries amounting to extensive laceration may give only small amounts of blood in the urine, whereas relatively minor ones, if in or near the pelvis, may result in gross hematuria. There is tenderness only in the flank, at first, but as the perirenal haematoma increases in size, abdominal tenderness appears, increasing and extending downward toward the lower quadrant. If extensive enough, this is accompanied by a falling blood pressure and a rising pulse rate (the secondary shock of hemorrhage). Abdominal distention is common and early, due to reflex paralysis of the bowel—the so-called “renal ileus.” A mass can soon be felt in the loin, slowly increasing in size and in tenderness until, on reaching the psoas muscle, it may produce psoas spasm sufficiently marked to cause flexion of the thigh on that side.

## PROCEDURE

To determine that the kidney is injured is easy, since even slight trauma almost invariably

produces hematuria, but to determine the nature and the extent of the injury is often a very difficult problem. Among other things, it is a matter of common observation that the degree of damage is often out of proportion to the magnitude of the applied force: great external violence may be accompanied by little or no damage to the kidney substance, and, on the other hand, a slight blow or fall may produce extensive laceration of the organ.

As a part of the preliminary investigation in the emergency room, whenever an injury suggests damage to the urinary tract the patient should be catheterized immediately. This procedure is neither dangerous nor shocking, and by it, the presence or absence of hematuria is determined.

In this connection I should like to point to a gratifying change in the attitude of the resident staff at Queen's Hospital during the last few years. Formerly it was not uncommon for the urologic staff to be called to see patients with kidney injuries only after a tumor in the flank pointed to an all too obvious extensive hemorrhage in that region, or sometimes only when the patient was reported by the nurse, sometimes hours after admission, to have voided bloody urine. Now it is not uncommon to be telephoned by the intern who states that the patient is in the emergency room and that catheterization has revealed blood in the urine. This probably reflects a change for the better in recent medical teaching.

If primary shock is present (and it nearly always is, to a marked degree) further manipulation of the patient is meddlesome and dangerous, and nothing further should be done than to get him into bed and to disturb him as little as the usual routine treatment for shock demands. Fortunately from then on there is usually no hurry and certainly no occasion to do anything until he has recovered from the shock.

Within the next 12 to 24 hours, however, it is vital to determine the nature and extent of the injury, for it would seem that in no other way

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Read before the May meeting of the Surgical Section of the Honolulu County Medical Society.



can one come to an intelligent conclusion as to just what course of treatment would be safest and best. Once that course is determined, it must be pursued with boldness and certainty.

In the years since excretion pyelography has been made practical, the problem of genito-urinary diagnosis has been greatly facilitated, but unfortunately this very valuable procedure has sharp limitations which are nowhere better illustrated than in the condition which forms the subject of this paper.

An excretion pyelogram which shows a perfectly functioning pelvis and ureter on the affected side strongly suggests that the injury is not a serious one, and that no radical interference is likely to be necessary. This can lead, however, to a false sense of security, for it has been shown on numerous occasions that extensive rents in the kidney substance, extending all the way from the pelvis to the cortex, through which a dangerous extravasation of urine later occurred, may be present despite a normal excretion urogram.

A negative picture, on the other hand, i.e. a failure of excretion on the affected side, can be even more confusing because of the multiplicity of conditions which may be responsible for this finding. Obviously, a complete destruction of the kidney will result in a complete failure of the excretion of the iodide on that side. But the secretory activity of the kidney may be markedly reduced or inhibited entirely by many relatively minor factors.

There is often no secretion of urine in a simple edema of the kidney following trauma. Subcapsular hemorrhage has been known to cause a temporary complete anuria. Hematomas and infarcts of the kidney likewise have been observed to cause a complete suppression of urine on that side for considerable lengths of time. Low blood pressure from shock is another factor which must be considered in evaluating the failure of the kidneys to concentrate the iodide in sufficient quantities to give an x-ray shadow. And finally the failure of the kidney to secrete may be due to that obscure condition lightly dismissed by a mere name "reflex anuria." Most of these latter factors are of no great moment but they can be mistaken for serious conditions if the evidence of the intravenous urogram alone is relied upon to make a diagnosis. The excretion urogram, therefore, has come to be considered in some quarters as nothing more than

a rough though valuable preliminary survey, since it is easy to perform and need not be particularly trying to the patient.

The role of the retrograde pyelogram is at the present time under serious, even somewhat acrimonious, discussion. The antagonists point to the danger of infiltrating the perirenal tissues, with the sclerosing contrast medium through a rent in the pelvis. The protagonists maintain, however, that this accident is much less serious than the leakage of urine which an undiagnosed rent in the pelvis makes possible; for urine, when outside the urinary tract, is one of the most dangerous and sclerosing secretions of the body. Certainly one should be fully conscious of the dangers associated with a retrograde injection of an iodide in the possible presence of an injured kidney pelvis, and should never perform the procedure without being prepared to operate immediately if a dangerous infiltration is demonstrated. It would seem that Sargent's opinion should be given serious attention when he says, "I freely admit the hazards of retrograde pyelography but I believe the sum total of those hazards do not equal the hazards of case management without them."

In considering the specific question of operation on injured kidneys, it is well to keep in mind the two principal pathological factors to be dealt with: (1) hemorrhage and (2) extravasation. The former is the lesser of the two evils because severe hemorrhage alone is not very often fatal, and indeed it is surprising to note the amount of massive hemorrhage in this region which may go on to spontaneous cessation and recovery. Watchful waiting, if it is not mere hopeful guessing, may be practised here. Fortunately again, there is no great rush, but a steadily falling blood pressure and a rising pulse with a palpably increasing haematoma and psoas spasm all point to a condition demanding prompt action.

It is believed by some men, especially in New York City, that nearly all injuries to the kidney warrant operation. This group frankly admits that some unnecessary exposures will be performed but they express the belief that delay often results in disaster, since a simple condition may be changed into a grave hemorrhagic infected one by delay. However, the assertion that infection *may* supervene, with emphasis on the word *may*, would seem to involve too much conjecture, and to point to an omission of diagnostic procedures



which would demonstrate more clearly the exact extent of the pathological condition. Since extravasation with infection is the source of the gravest danger to the patient and greatest worry to the surgeon, it is possible that more retrograde pyelography would make for a more exact diagnosis and permit a more decisive stand on the question of intervention or non-intervention.

The work of Sterling and Lands \* throws some interesting conjectural light on this subject. Their work was on experimental animals where the kidney had been injured deliberately external violence. One half of the animals were operated on and repair of the kidney was performed. The other half were treated conservatively. In all of the severely injured animals operative repair was 100% successful, where 80% of the unoperated animals died.

Of course, no absolute rule of procedure, after exposing the kidney, can be laid down, but the term "increasing conservatism" which appears often in the literature nowadays suggests plastic conservative repair than nephrectomy. If the contour of the pelvis is reasonably well pre-

served, even though there is extensive rupture of the parenchyma, restoration to normal usually follows careful plastic repair. On the other hand, if the pelvis is shattered beyond hope of repair, there can be no hope for the kidney and little for the patient unless prompt nephrectomy relieves him of a now useless organ.

#### SUMMARY

1. Prompt diagnostic catheterization is not always performed on patients injured in the region of the kidney. It should be done.
2. A plea is made for a more exact determination of the extent of the injury.
3. Excretion urograms are helpful but their interpretation must be sharply limited.
4. Of the two major hazards, hemorrhage and urinary extravasation, the latter is by far the more serious.
5. More exact diagnosis leads to more certainty in adopting a course of treatment.
6. There is a trend toward more conservative plastic surgery at the present time.

\* Journal of Urology 37:466 (April) 1937.

Young Hotel Building.



# Mild Abdominal Pain Due to Ovulation

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It is the object to this paper to discuss pain due to ovulation and some of the clinical problems connected with it. We shall emphasize the mild or subacute case of rupture of the graafian follicle or of the corpus hemorrhagicum, and the occasional case of the corpus hemorrhagicum cyst. Cope<sup>1</sup> in his excellent book on early diagnosis of acute abdominal conditions fails to mention the humble graafian follicle and the corpus hemorrhagicum, which can cause symptoms of varying intensity in most women of childbearing age. Thorek<sup>14</sup> states that rupture of an ovarian follicle with massive intraperitoneal hemorrhage is not uncommon but he fails to mention the cases with the milder symptoms where the mistaken diagnosis is more embarrassing. For excellent discussions of the severe types of ovarian hemorrhage the articles by Phaneuf,<sup>11</sup> Johnson,<sup>6</sup> and Greenhill<sup>4</sup> may be consulted.

Novak<sup>10</sup> has remarked that no organ of the body is as frequently the site of hemorrhage as is the ovary. There is very seldom enough bleeding to be noticeable at the time the ovum is extruded from the follicle. At once, a host of small blood vessels work inward to the granulosa, first penetrating the theca interna. A structure is now formed which is called the corpus hemorrhagicum. When the bleeding here is excessive, a spill-over into the pelvic cavity occurs, causing symptoms which vary in intensity according to the amount of bleeding. Even more important, however, is the individual's acuity of perception and sensitivity to pain. In his studies on ovulation, Ito<sup>5</sup> has noted that the female medical students used as subjects were more acutely aware of the symptoms than were most of the nurses.

Anyone concerned with the diagnosis of lower abdominal pain in women of childbearing age should familiarize himself with the signs and symptoms of ovulation which appear in various ways. Seguy and Simonnet<sup>13</sup> have mentioned the appearance in the cervix of a glossy translucent fluid secretion, associated with intermenstrual low pelvic pain and vaginal bleeding. Ito<sup>5</sup> has made a thorough study of the signs and

symptoms of ovulation, listing leukorrhea, languidness, feeling of tension in the breasts, transient emotional instability, pain in the lower abdomen, anorexia, etc.; and his articles are well worth reading. In our gynecology courses in medical school we are told of the so-called "*Mittelschmerz*" and can write fairly good examination papers on the subject. After we have graduated however, the subject of menstruation and ovulation is all too often never even mentioned to the patient prior to an operation at which is found—not infrequently—a normal appendix and a small collection of blood-tinged fluid in the cul-de-sac. Careful inspection will usually show clearly a small roughened area on the surface of one ovary, often effectively plugged by a clot and with no active bleeding going on. It is the unfailing duty of the surgeon to secure as accurate a gynecological history as possible whenever abdominal pain is encountered in a woman of childbearing age. This cannot always be done in fulminating cases; but we refer here to the milder case. When in doubt, one should have the advice of a gynecologist or of one who has had much experience with gynecological conditions even though he is not a specialist.

McSweeney<sup>9</sup> reports that 257 patients were admitted to the Boston City Hospital in the years 1926 to 1938 with chief complaints of abdominal pain due to ovulation or its sequelae. Of these, 216 were operated on; 41 were diagnosed as having pain due to ruptured graafian follicles and were not operated on. If it is assumed that the 41 cases were diagnosed correctly, a total of 61 out of the 257 or 23.7% of the cases were due to graafian follicle bleeding. In questioning 134 women who menstruated regularly, he received replies to the effect that 53, or 40%, had some symptoms suggesting ovulation, such as spotting, soreness of the breasts, leukorrhea, or abdominal pain. 21 out of 134 (or 1 in 6) noted frequent attacks of minor abdominal pain between periods. 73% of these cases fell in the age group of 15 to 25. In Cosbie's<sup>3</sup> series at the Toronto General Hospital, 72% of the cases occurred in this same age group.

The time of onset of the pain was observed carefully by McSweeney<sup>9</sup> in 162 cases of disturbance associated with the follicular apparatus of the ovary and the following conclusions were reached:

(a) In ruptured graafian follicle cases, the symptoms occurred early or in the middle of the intermenstrual period.

(b) In rupture of the corpus hemorrhagicum, some begin to have pain in the midportion of the menstrual cycle, but most have it in the latter part.

(c) With corpus hemorrhagicum cysts, however, the symptoms occur about 21 days after the first day of the last period.

It is most urgent that the patient receive the benefit of an incision which is large enough and so placed that the appendix can be readily reached and the uterus and adnexa thoroughly inspected. The McBurney incision is totally inadequate for the latter purpose. The Pfannenstiel incision is open to certain objections among which should be mentioned the difficulty which is encountered with occasional retrocecal appendices, especially the variety which extend high up toward the liver. The right rectus incision does not always give sufficient exposure of the left adnexa especially if the recti be insufficiently relaxed or if distended loops of bowel be present. It must be remembered that "hemorrhage from the left ovary may produce signs and symptoms in the left lower abdomen" (McSweeney<sup>9</sup>). Furthermore, as has been emphasized by Kirschner,<sup>7</sup> correct incisions should be so placed as to pay heed to the lines of skin tension. A careful look at the illustrations in this text will show that the incision of Battle and other right rectus incisions disregard the lines of skin cleavage or tension which are the same in all individuals and can be recognized by the direction of folds of skin and the lie of the hairs. It will be seen that the midline subumbilical incision is placed where the skin tension lines converge after coming inward, downward and forward from the flanks; it also allows equal

exposure of both adnexa and adequate access to the appendix.

Diagnosis of mild hemorrhage from the ovary offers many stumbling blocks. Summarizing this matter, Pratt<sup>12</sup> and others have emphasized that disturbance of the follicular apparatus Burney's point, while in appendicitis it is usually greater *at* the mentioned point. Bimanual palpation usually produces maximal tenderness *below* McBurney's point and manipulation of the ovary will often give the clue. In any woman of the active reproductive age having onset of pain in the lower abdomen during the middle or latter half of the interval between menses, associated with tenderness over the ovary, slight elevation of temperature, and mild leucocytosis (even though there be loss of appetite, nausea and occasional vomiting), the diagnosis of peritoneal irritation due to fluid from a ruptured follicle or corpus luteum should be strongly suspected. Cutaneous hyperalgesia is an unreliable aid. Cope<sup>2</sup> has shown several types that may be found in cases of acute and subacute appendicitis, and MacKenzie<sup>8</sup> says "beyond an indefinite patch of hyperalgesia of the skin in the region of the groin, extending sometimes for a variable distance down the thigh, I have not been able to make out much that is reliable in regard to the hyperalgesia area of ovarian disease. It is in these cases we often find such widespread areas that it is doubtful how much is due to the actual ovarian lesion." Finally when the abdomen is opened in case of doubt, in the intermenstruum, and a slightly injected appendix is seen, the surmise of hemorrhage or a corpus hemorrhagicum. One should continue with inspection of both adnexa especially looking for graafian follicle appendix may appear slightly injected when bathed in bloody fluid which has originated from ovarian bleeding.

In case it has been found advisable to explore the pelvic organs through an abdominal incision, active bleeding from a corpus hemorrhagicum or graafian follicle should be controlled by mattress sutures of absorbable material, preferably fine plain catgut. Should the bleeding area be large or should the trouble be due to a corpus hemorrhagicum cyst, the offending area should be resected and closure effected by similar suture material. There is seldom, if ever, justification for the sacrifice of an entire ovary under these circumstances.



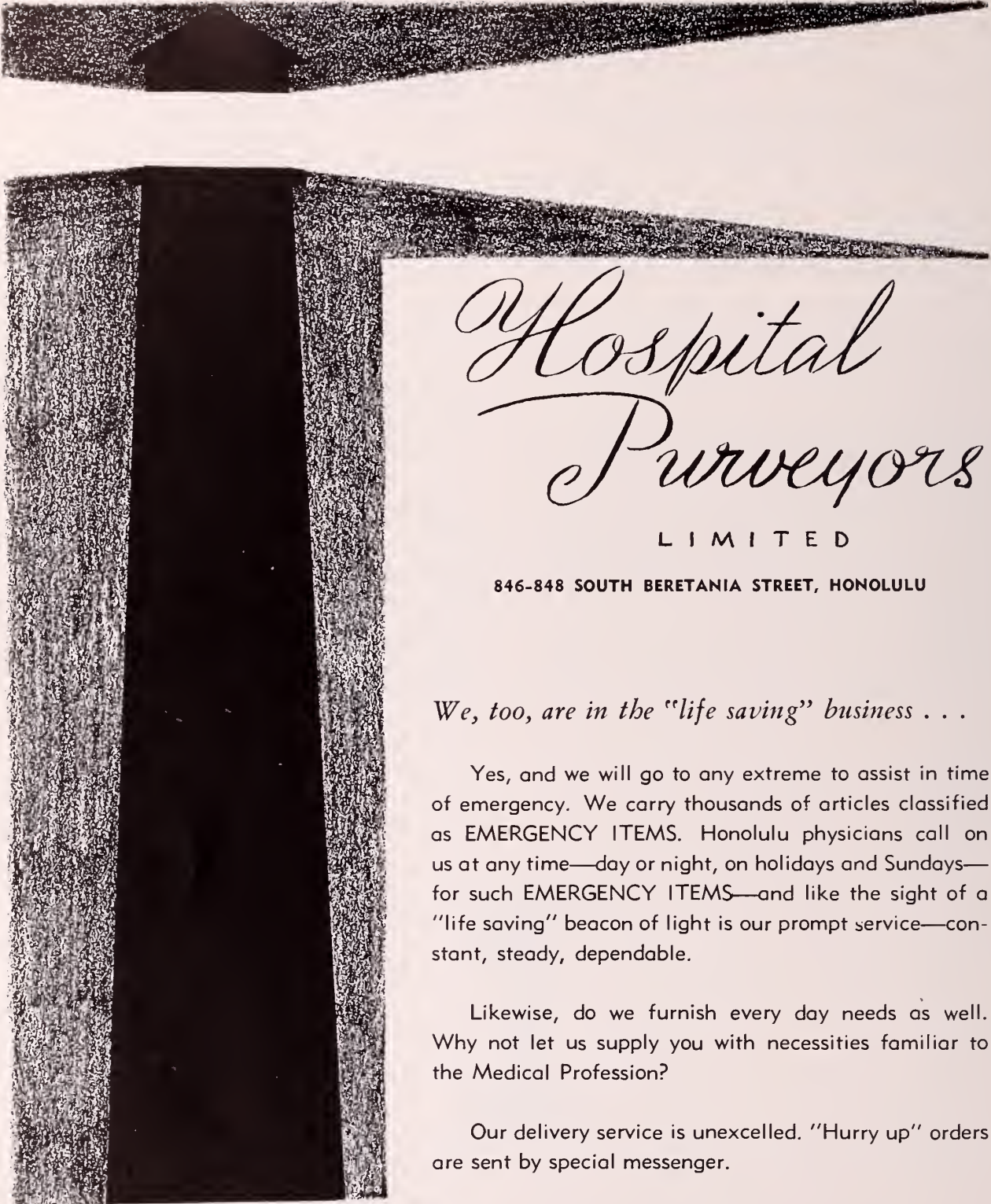
## SUMMARY AND CONCLUSIONS

1. Anyone concerned with the diagnosis of lower abdominal pain in a woman of child-bearing age should familiarize himself with the signs and symptoms of ovulation.
2. Such a patient should not be subjected to surgery until a careful gynecological history has been obtained and the pelvic organs carefully examined vaginally, or rectally when this is impossible. Collateral evidence of ovulation should also be looked for.
3. Approximately 73% of disturbances of the ovarian follicles occurs between the ages of 15 and 25.
4. Where exploration of pelvic organs is indicated, the midline incision is preferred.
5. If these precautions are conscientiously observed, and repeated clinical and laboratory examinations are carried out when the emergency is not acute, many unnecessary operations may be avoided.
6. When operation seems necessary, extreme conservatism with preservation of all normal ovarian tissue should be the rule.

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## EDITORIALS

### MENTAL HEALTH CLINIC

The Territory of Hawaii has in the past been distinctly backward in the application of modern methods of treatment to mental disease. Until the visit of Dr. Franklin G. Ebaugh, in 1937, we had almost no governmental facilities for the institution and supervision of psychiatric treatment.

The responsibility for this is not to be placed at anyone's door, except perhaps that of the Legislature, which failed to provide funds for an adequate medical staff at the Territorial Hospital. This staff was of necessity so small and so overloaded with administrative details that it had time for little more than the absolutely necessary routine care of the patients.

In 1938, when Dr. Ebaugh toured the various islands as a demonstration of what might be done by a mental hygiene bureau, the usual official expression for the care of the insane on the outside islands was simply "held in jail." In spite of the previous mandate of the legislature that each county provide a place other than the jail for safeguarding the insane, this had not been done anywhere except in Honolulu. There were several able physicians who were interested in psychiatry and competent to practice it; but in general they had no place to work. Furthermore, as is usually the case, a relatively large proportion of the patients were unable to pay for psychiatric or other medical care.

The Mental Health Clinic, a bureau of the Board of Health, was finally established after a great deal of effort on the part of the medical profession and lay groups to urge upon the legislators the need for such a program. The Hono-

lulu Chamber of Commerce gave liberally of its Public Health Committee funds for the institution of the new bureau, and for operating it during the first year of its existence.

Parallel with this program there has been a striking improvement in the facilities for the treatment of mental disease at the Territorial Hospital, at Kaneohe. The institution is now presumably adequately staffed; the staff is in some measure to the stimulating effect of the activities of the Mental Health Bureau of the Board of Health.

The objection has frequently been raised, that the Board of Health should confine its activities to the prevention of disease, and not undertake actual treatment; and, of course, the soundness of this principle cannot be denied. Its application to the present activities of the Mental Health Clinic, however, in criticism of the propriety of those activities, would appear to be quite improper. One of the primary purposes in the formation of the Clinic was that of prevention of mental disorders. The idea was to provide an institution to which persons who feared they were developing mental disease might be sent for the prevention of development of actual psychoses. Now, most laymen regard hospitals for the treatment of the insane with aversion. It is all very well for us to refer to the Territorial Hospital as a place for the care of the sick in mind, and to think of it in that way; but to the man in the street it is the "*pupule*\* house." Any patient in an emotional crisis, beginning to fear

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\* *pupule*: Hawaiian for insane, "crazy."



that he may be losing his mind, who is told that he will be sent to the Territorial Hospital for observation must feel in many instances that he is insane already or he would not be sent there. Certainly the problem of preventing incipient psychoses would be rendered many times more difficult by this natural and inevitable emotional reaction.

Moreover, it cannot be denied that—unjust as it is—a certain stigma attaches to one who has been confined in a hospital for the insane. This stigma exists in the mind of the patient as well as in the minds of his family, friends, and acquaintances. At times this may be sufficiently important to make the difference between recovery from an emotional upset and the development of an actual psychosis. The existence of such an institution as the Mental Health Clinic makes it possible to avoid subjecting many patients to this additional handicap.

No one will claim, then, that it is sensible to treat mental illness for long periods of time in general hospitals, or that it is proper for the Board of Health to engage on any scale in the treatment of the insane. But it is clear that there exists a very real need for an institution apart from the Territorial Hospital, for the study and classification and observation of mental disorders not yet known to be psychoses. And it would appear that the enormous value of such an institution in preventing the development of psychoses amply justifies the Board of Health in continuing to maintain—and when and if possible to expand—the present Mental Health Clinic at The Queen's Hospital.

It would be a great mistake to suppose that the Mental Health Clinic and the Territorial Hospital are, or might become, competitors. The excellence of the work being done in both institutions is well known, and is about to be enhanced considerably by the projected construction of a new centralized unit at the latter institution for the management of many of the more acute psychoses. There is no question but

that each institution is doing a necessary job, and doing it well; they complement one another; there is ample room and ample need for the continued existence and growth of both of them, to the ultimate end of a satisfactory program for the management of mental disease in the Territory of Hawaii.

H. L. ARNOLD, SR., M.D.

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### MEDICAL PRACTICE ACT\*

Against our hopes that the Special Session of the Legislature would not concern itself with any matters of medical implication, Senator Trask saw fit to open up the Medical Practice Act. According to Senator Trask the purpose of S.B. 27, which passed rapidly through both Houses and became law (Act 40), is to permit a physician who was in 1939 (the date the Medical Practice Act was revised) attending or then graduating from other than a Class A medical school to take the Territorial medical examination up to January 1, 1944. "It would appear," says Senator Trask, "that if the student is inadequately trained he would not be able to pass the examination, and that the passage of S.B. 27, as presented by me, would in no manner tend to make possible the licensure of inadequately trained doctors, but only correct the present injustice of the law."

This loophole was provided obviously to apply to a single applicant, and in spite of protest on the part of your Legislation Committee to Senator Trask and other members of the Legislature, as well as to the Governor's office, this bill became law.

We believe this is a distinct step away from high standards of medical practice in the Territory of Hawaii and places an unnecessary hardship and responsibility on the Board of Medical Examiners when it had already been provided that only applicants with the minimum standards prescribed by the American Medical Association would be permitted to take the examinations.

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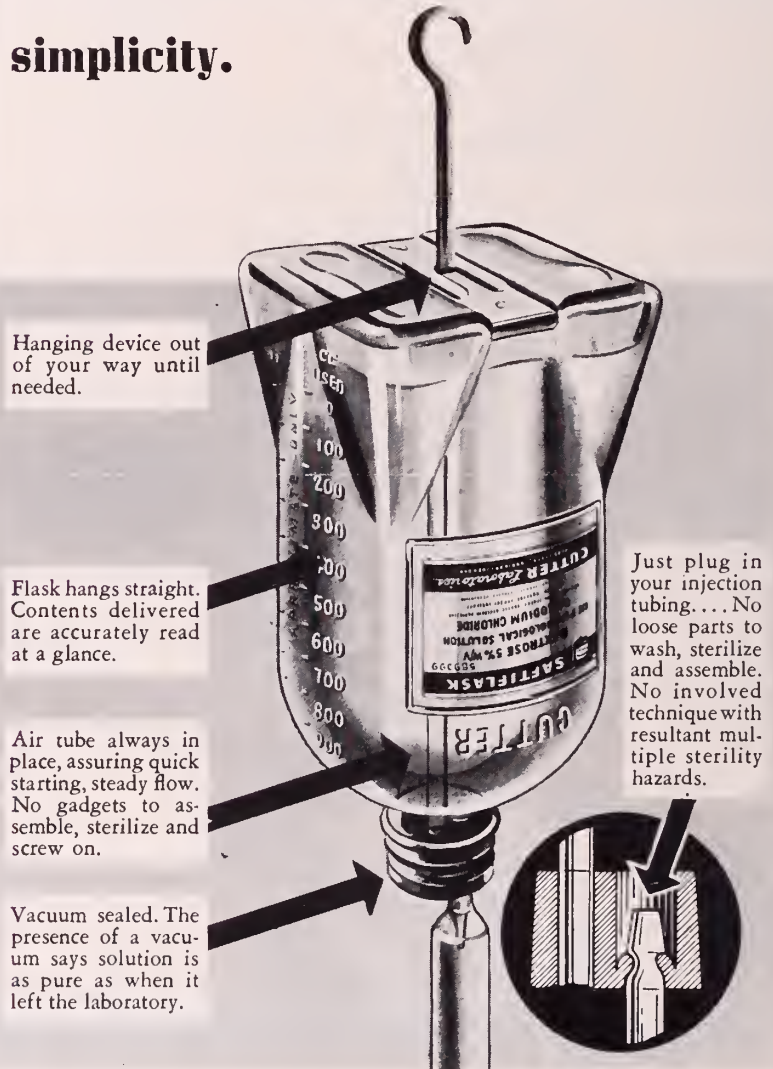
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# PROGRESS IN INTERNAL MEDICINE

## MILD PNEUMONIA

Interest in pneumonia has been awakened everywhere by the introduction of drugs of the sulfonamide series. Most of the papers which have appeared in recent months have dealt with the treatment of pneumococcus pneumonia with these compounds. All writers stress the necessity of examination of sputum to determine the causal bacteriological agent, careful selection of the most effective drug, and then administration of this compound in full therapeutic doses. This is relatively simple in a case of typical pneumococcus pneumonia. There remains, however, a group of cases of atypical, or mild pneumonia, in which the diagnosis is frequently difficult to establish; the etiological agent is difficult or impossible to demonstrate; and one is in doubt about the course of the disease, and its treatment.

One of the first papers concerning mild pneumonia came from Hawaii. In 1935 Major Albert Bowen presented the findings in a group of cases studied roentgenologically at the Tripler Hospital; he called the disease "Acute Influenza Pneumonitis." (Bowen, Albert: *Acute Influenza Pneumonitis*, *Am. J. Roentgenology*, 34:168 (August) 1935.) This disease has been found to occur in mild epidemics in a number of mainland communities. Certain investigators have classified the disease as a virus pneumonia (Reimann, Herbert A.: *An Acute Infection of the Respiratory Tract with Atypical Pneumonia*; *J.A.M.A.* 111:2337 (Dec. 24, 1938). Recently R. E. Dyer and his associates at the National Institute of Health have recovered a new organism from cases of mild pneumonia occurring in epidemic form. This is a filter-passing rickettsia which is very similar to, if not identical with, the organism which causes the so-called "Q" disease among abattoir workers and dairy-hands in Aus-

tralia, (An Institutional Outbreak of Pneumonitis: I - Epidemiological and Clinical Studies by J. W. Hornibrook and K. R. Nelson. II - Isolation and Identification of Causative Agent, R. E. Dyer, N. H. Topping, and I. A. Bengston, *Public Health Reports*, 55:1936 (October 25, 1940)

Further clinical and experimental work may aid us in the proper etiological classification of cases of mild pneumonia. Up to the present, however, the etiological agent cannot be said to have been established. Until it has, the application to these cases of new terms (such as "pneumonitis") will not further clarify the situation.

This was well brought out in a recent article by Chas. E. Lyght and L. R. Cole, (*Pneumonia as it May Affect Young Adults*: *Ann. Int. Med.* 14:2246 (June 1941). They describe the clinical aspects of pneumonia as it affects college students observed at the University of Wisconsin Health Service. This paper is based on a careful study of 300 consecutive cases observed between the years 1931 and 1939. The disease was predominantly a mild pneumonia, having rather gradual onset and relatively low fever (between 100-103°), and fall of temperature by lysis in from six to eight days. General toxic symptoms frequently dominated the clinical picture at first. Cough was practically always present at some time during the course of the disease, but other prominent symptoms recorded were general muscular aching, headache, and upper respiratory tract complaints. Only half of the cases showed signs of consolidation, and diagnosis was frequently made only by roentgenographic study. Leukocytes were usually between 8.5 and 10 thousand and frequently showed a rise to 17 or 20 thousand during the stage of resolution—without the occurrence of complications.

The etiology was not established in a third of the cases. Streptococci predominated in the majority of cases where significant numbers of organisms were found. Only 56 were due to pneumococci, and these were usually of higher types. In more recent cases, where drugs of the sulfonamide series were exhibited, no dramatic recoveries were noted.

The authors note a low mortality (3.6%) and attribute it to high general health level in the ages and social stratum concerned, the fairly low average virulence of the infective agents encountered, and the prompt and effective diagnostic and therapeutic services available. They caution against inadequate consideration of these factors in the evaluation of results of serotherapy, chemotherapy, and other forms of treatment. They conclude that it is unnecessary to label mild pneumonia as atypical pneumonia, or to coin any terminology that suggests a process not covered the thoroughly adequate term, pneumonia.

Objection will be raised by some to the substitution of other nomenclature for a group of cases rather well recognized locally, and commonly referred to as cases of "pneumonitis", or "virus pneumonia". Perhaps the term, pneumonitis should be applied generally to all cases of pneumonia, but accepted usage dictates otherwise. Until the specific etiology of mild pneumonia is proven, it seems to the reviewer dangerous to apply a term which suggests specificity. A more general term encourages one to search more diligently for an etiological agent in a given case. Such a search should include always careful sputum examination for predominating organism, and typing where pneumococci are found. Frequent blood cultures are indicated and perhaps guinea pig inoculation, for the diagnosis of the rickettsial disease "Q fever". Lung puncture, following the suggestions of Dr. Blankenhorn and others, may be the final solution to the problem of the etiological classification of mild pneumonia.

STEWART E. DOOLITTLE, M.D.

## *For the local Treatment of Acute Anterior Urethritis*

(DUE TO NEISSERIA GONORRHEAE)



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Silver Picrate, Wyeth, has a convincing record of effectiveness as a local treatment for acute anterior urethritis caused by *Neisseria gonorrhoeae*.<sup>1</sup> An aqueous solution (0.5 percent) of silver picrate or water-soluble jelly (0.5 percent) are employed in the treatment

1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," *Am. J. Syph., Gon. & Ven. Dis.*, 23, 201 (March), 1939.

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# RECENT ADVANCES IN SURGERY

## THORACIC SURGERY

Twenty five years ago thoracic operations were abandoned because of their high mortality. Graham's studies of surgical physiology of the chest, during World War I, made intrathoracic lesions accessible. With improvement in anesthesia and operative technic during the last decade, thoracic operations have become commonplace.

### Carcinoma of the Esophagus

Prior to 1934, only one patient with carcinoma of the esophagus survived the operation by more than two years. Since 1938 twenty patients are living after resection of carcinoma of the esophagus. This achievement is important when one considers the frequency of occurrence of this tumor in men over twenty years of age. The usual operative technic for carcinoma of the lower esophagus is by way of a trans-pleural approach. The diaphragm is divided and the cardiac end of the stomach is mobilized along with the tumor-bearing area of the esophagus. This area is resected and the stomach is elevated into the pleural cavity and anastomosed to the divided esophagus. This procedure has also been utilized to resect tumors of the cardiac end of the stomach that have previously been considered inoperable. In carcinoma of the upper two thirds of the esophagus external establishment of digestive continuity is necessary. Resection with internal reconstruction has been uniformly unsuccessful.

### Heart and Great Vessels

The most outstanding recent accomplishment in surgery of the heart and great vessels has been the successful closure of a number of cases of patent ductus arteriosus by Gross. The ductus arteriosus usually closes during the first year of postnatal life, having served the purpose of shunting blood from the pulmonary artery to the aorta. Failure of this duct to close carries with it the likelihood of a superimposed bacterial endarteritis or of cardiac decompensation from the arteriovenous aneurysm.

Gross has now operated upon 10 cases with a satisfactory result in 8. He advises operation only in selected cases usually in children from 5

to 6 years up to adolescence. He warns against the hazards of the operation, which must be balanced against the dangers of the untreated abnormality.

The operative approach is thru the left anterolateral chest wall, temporarily collapsing the left lung and ligating the patent ductus with heavy waxed silk. Because the duct is so short he does not recommend division between ligatures. When properly used in patients with retarded mental development or evidence of cardiac embarrassment, the post operative results have been excellent.

### Cardiac Wounds

Another attainment of modern thoracic surgery is the successful suture of wounds of the heart. Elkin reported 38 patients with heart wounds inflicted by knife or ice pick. Recovery occurred in 22 patients following operative procedures designed to suture the laceration. He stresses early operation as imperative in relieving the cardiac tamponade which invariably results from accumulation of blood in the pericardial sac. He summarizes the signs and symptoms as follows:

- 1—There is usually a history of freedom from symptoms for several minutes after the wound has been received, followed by rapid collapse and unconsciousness.
- 2—Heart sounds are weak, as is the pulse.
- 3—The arterial pressure is lowered.
- 4—The venous pressure is raised.
- 5—Fluoroscopic examination shows a quiet heart.

He emphasizes speed, care, and preparation of patient with morphine, warmth, and blood transfusions. Inhalation anesthesia was found to be more suitable because of the possibility of opening the pleura and the difficulty encountered in keeping the patient quiet after release of the tamponade. The incision usually used was a transverse incision in the region of the 5th and 6th left interspace. One or two ribs removed with adjacent costal cartilages allowed extrapleural approach to the heart thru which successful suture could be more safely carried out.

He also describes a frequent injury to the heart in which a contused wound results without an actual break. This type of injury results from an individual's being suddenly thrown against the steering wheel of a car. Persistence of symptoms



such as precordial pain, dyspnea, tachycardia, cyanosis, irregularity of the heart, and a peculiar "tick tick" quality of the heart sounds, makes the diagnosis almost certain. Symptomatic treatment is advised such as sedatives, oxygen, and confinement to bed until the symptoms have subsided. The eventual outcome and medicolegal difficulties are described.

### **Intrathoracic Tumors**

The wave of enthusiasm following Graham's first successful total pneumonectomy seven years ago has somewhat subsided. Technically the operation still remains a brilliant achievement in the field of thoracic surgery. However the hospital mortality rate remains high, approximately 20 to 35 per cent, depending upon whether or not pre-operative infection existed. The operative survival is of minor significance compared to the ultimate cure, and enough time has now elapsed to show that surgical arrest does not necessarily mean complete eradication of the disease. More time will be necessary to reveal the frequency with which the surgeon is able to arrest the growth of cancer of the lung.

Benign tumors of the mediastinum offer a much more hopeful prognosis. In general the large round tumors occupying the posterior mediastinum are neurogenic in origin and those found anteriorly are dermoid cysts and teratomas. Continued use of X-ray therapy in the absence of a definite diagnosis cannot be condemned too strongly.

### **Intrathoracic Goiter**

Lahey brings out the interesting fact that most intrathoracic goiters originate from a single adenoma in the lower pole of the thyroid. As it descends thru the superior thoracic aperture and enlarges in diameter, the descent is facilitated by the outflaring of the upper portion of the thoracic cage. In removing the intrathoracic goiter he stresses the importance of ligation of the superior and inferior thyroid arteries in the neck before an attempt is made at removing the thoracic portion of the mass. The size of the intrathoracic mass may be then decreased by inserting a finger into the soft central portion, twirling it about until the center is broken down. He also emphasizes the use of a rigid intratracheal tube for anesthesia and drainage of the large mediastinal cavity for a fairly long period of time.

### **Pulmonary Abscess**

A survey of the extensive literature accumu-

lated in the treatment of pulmonary abscess reveals a very high mortality rate. Allen and Blackman reported a fatality of 34.2 per cent, in a group of 2114 surgically treated cases. The conception that a patient should be treated conservatively for at least six to sixteen weeks is predominant among leading authorities interested in this disease. Various combinations of therapeutic procedures are used during this regime: supportive therapy, drug therapy, postural drainage, bronchoscopic aspirations, and pneumothorax.

Neuhof and his associates have advocated early drainage for some time. He recently reported 4 deaths in 104 consecutive cases, with a cure in a majority of the survivors. Overholt has reported a group of patients treated by external drainage at an early stage of the disease. The mortality rate was 6 per cent and the cure rate was 94 per cent. A majority of these operations were performed in a single stage because of the frequency of pleural symphysis overlying the abscess. A demonstration of this early formation of pleural symphysis may have an important bearing in future attempts to solve this problem. Overholt also stressed the importance of accurate localization of the abscess, with retraction to the surface of the pulmonary lobes in which it is situated. This preoperative localization was made possible by the roentgenographic demonstration of lipiodol in a 30 per cent suspension of lamp black, injected beneath the fascia of the external intercostal muscle. This accurate localization was responsible for the safe approach through the area of pleural symphysis rather than through the danger zone of pneumonitis. A disturbance of this surgical danger zone often leads to a spreading pneumonitis or to fatal embolic complications.

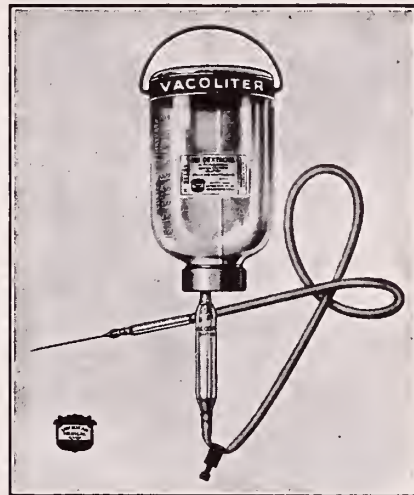
Earlier operations may prove important in preventing intrathoracic spread of the infection because of inadequate drainage. Most surgeons agree that conservative treatment of pulmonary abscess is often carried far beyond the point where a spontaneous cure can be reasonably expected. However one should not become too enthusiastic over early operations, as 20 per cent of all cases of pulmonary abscess may be expected to heal spontaneously. Most surgeons agree that the six weeks period should elapse before operation is undertaken, not only to allow spontaneous healing if possible but also to permit subsidence of concomitant pneumonitis.

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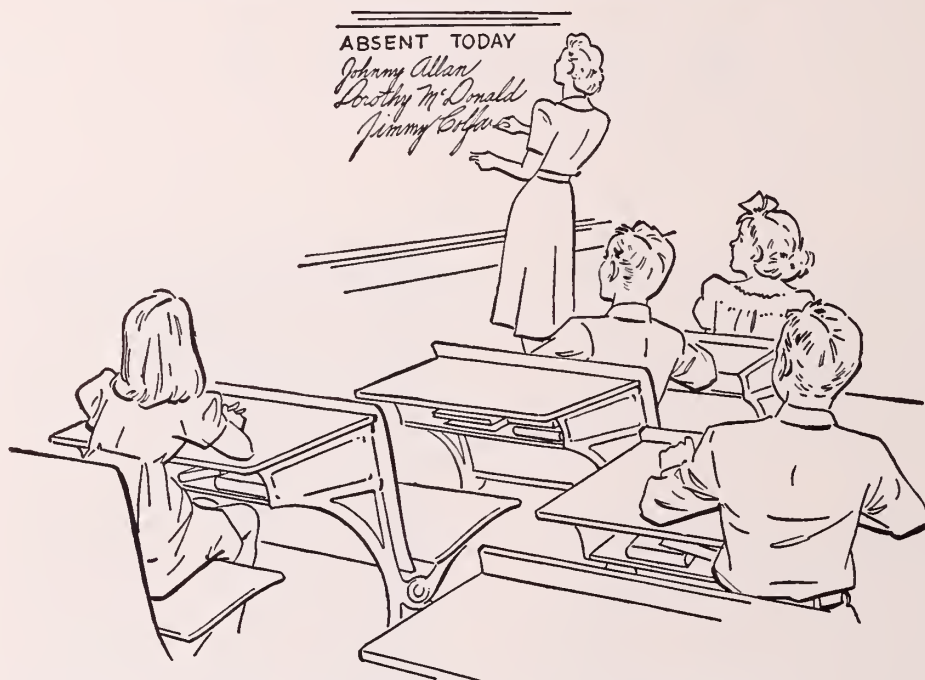
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⅜ grain, in bottles of 40 and 250 capsules

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# CLINICO-PATHOLOGIC COMMENT

## BLOOD GROUPS AND TYPES

Tradition has it that a Pope and his six youthful donors were all bumped off in the first attempted transfusion through a goose quill; the latter were probably exsanguinated; the former probably died of the first "transfusion accident" or his fundamental disease.

Later Landsteiner discovered three different groups of human blood, and later Decastello and Sturbi added a fourth. Life became more complicated, but transfusion accidents rarer. Moss and Jansky numbered these Groups I, II, III, IV but, unhappily, they did not coincide, so that when one spoke of Group I or IV, one immediately had to specify if it were Moss or Jansky.

Subsequently, the International Nomenclature came into common usage and the old-timers had to count on their fingers to remember that Moss I, II, III, and IV were AB, A, B, and O. But even after we were all speaking the International language, and the typing and cross-matching were greatly improved, "transfusion accidents," "reactions," occasionally occurred.

Then someone discovered that A's were not all pure A's—there were  $A_1$  and  $A_2$ , closely related, but different. Heterologous transfusions within this A group did not cause major transfusion accidents, but they accounted for some of the minor ones—chills, fever and the like. So then we had to classify the groups as  $A_1$ ,  $A_2$ , B, O,  $A_1B$ ,  $A_2B$ . These sub-groups were found to follow the mendelian law and in some 10 or 11 states have been recognized legally in ruling out paternity.

Then some smart scientists discovered that there were other characteristics of the blood, also inherited according to Mendel, but having no bearing on transfusions. All people had either one of these new characters M or N, or MN. These are referred to as blood types rather than groups. This discovery had great forensic value and the innocent lover had a better chance of disproving paternity.

Then some more smart scientists—these indefatigable workers with guinea pigs and monkeys

—found that if they immunized a rabbit with the blood of *Macacus rhesus* monkeys, and tested humans against this immunized rabbit serum, all people fell into "Rh positive" (85%) or "Rh negative" (15%) groups. This character also followed Mendel's inheritance law, and became an additional factor in ruling out paternity (the innocent lover was by now becoming more and more secure); but this new discovery also gave a key to many abortions, macerated fetuses, cases of erythroblastosis fetalis and icterus neonatorum, and the 50% fatal transfusion reactions in the mothers of erythroblastosis fetalis infants.

For example, the mother may be Rh negative and the father Rh positive. The child in utero has inherited from the father the Rh positive character. The Rh character within the red cells of the foetus diffuses past the placenta, into the mother's circulation. Against this antigen, she builds up antibodies—agglutinins and hemolysins—in an ever-rising titre. These antibodies then diffuse past the placenta into the fetal circulation, there to destroy red cells and to produce erythroblastosis. Should the mother need one or more transfusions, it is obvious that she must not receive blood of the same Rh group as her husband or baby (in this case, Rh positive), lest the donor's cells be agglutinated or hemolyzed within her blood stream, causing oliguria or anuria.

It is also obvious that should the baby need one or more transfusions, the blood must not come from the mother, but from the father or one of a similar Rh group, in this case Rh positive.

This new intelligence about the Rh factor, at the moment, aids us in 3 ways: (1) the mother of an erythroblastosis infant, in need of blood, had better, pending a determination of her Rh status, received very large quantities of plasma, until her plasma proteins are normal, and oxygen and iron, rather than a whole blood transfusion from a donor who might not be of her Rh type; (2) the infant must be transfused with all factors considered; the mother's blood is not to be used; the father's is to be preferred; (3) paternity can now be ruled out with greater frequency.

Essays on this subject are being published in increasing numbers. A most enlightening and simple one, with illustrative case reports, is presented by Lyman Burnham in the *Am. J. Ob. & Gyn.*, September 1941. He says, very practically, that almost all, if not all, untoward reactions in these mothers can be prevented by a modified cross-matching technique devised by Levine (*Am. J. Ob. & Gyn.*, July, 1941). This consists of the incubation of the mixture of the donor's cells and the recipient's serum at 37 degrees (in contradistinction to room temperature) for thirty minutes. The tube is then centrifugalized at about 500 rpm. for one minute and the contents read as in the usual Landsteiner method.

### TYPHUS

Speaking of rats—and everybody is—reminds us that they are moving into our homes again, and endemic typhus is on the increase; in fact, last month we broke all previous records. A persistent headache, that aspirin will not cure, must be suspected as typhus. It is a waste of time and money to request a Weil-Felix reaction (agglutination of *Proteus* X 19) on or before the 5th day of illness. Request it on the 7th and repeat on the 9th, for rising titre.

Lilly now puts out a clever and useful bedside diagnostic set. It consists of some capillary tubes of *Proteus* X 19 suspended in a citrate-formalin solution colored with methylene blue. In the package are also a small rubber bulb (as with small pox virus) and some glazed cards with pictures of a negative, weakly positive, and strongly positive reaction. On this card is deposited the contents of a capillary tube, one drop; then from a puncture, blood is drawn into the capillary tube to a distance not over  $\frac{1}{4}$  inch and deposited next to the antigen; they are mixed and spread out on the card like the model picture. Tilt and roll the card for a minute or more, until it dries; read the reaction, and you have a permanent record. It really works, we have tried it. One package of 5 tests costs 90 cents.

During September, 1941, there were 15 cases of typhus reported in the Territory and of these, 14 came from Oahu. Either (1) there is *very* little typhus on the outlying islands, (2) the physicians are failing to diagnose it, (3) the disease is so mild that the patients do not see the doctor, or (4) the doctors are failing to report it. This little test package should be a great help to them. Of course, it does not give accurate titration

values as the serial tube Weil-Felix does, but it should be a great diagnostic aid.

Ida A. Bengston (Public Health Reports, March 28, 1941 and August 29, 1941) has developed a complement fixation test for endemic typhus that seems to run parallel to the Weil-Felix but, unlike the latter, it remains positive many years after the infection. It would be very useful in clearing up old, doubtful cases or in making a survey of our local situation. Whether X-19 titer or the complement fixation titer in an old, recovered case of typhus goes up with subsequent heterologous infections—the so-called “anamnestic reaction”—is still an open question.

### PLAGUE

Bubonic plague, the Black Death or, if you prefer the less alarming term, Sylvatic plague, is marching eastward from California toward the Atlantic. This year, in its cyclic fashion, epizootic sylvatic plague is killing countless rodents, ground squirrels and the like. Something queer has been going on in our own rats, of which we have so many in Hawaii. Some time ago there was a sudden and very sharp rise in the number of plague-positive rats found on Hawaii. Apparently our rats did not like it any more than we did, and moved out; I am informed that the S.S. Manukai took up to the Coast, on her last trip, 82 rats, while her usual complement is less than 10. The mouse one smells may be a rat, or many of them. It may pay us, everywhere in Hawaii—not only in Makawao and on the Hamakua Coast—to look on every swollen lymph node as potentially plague.

Should the need arise to investigate accurately a case or a rat under suspicion, it might be well to follow the technique used by Dr. N. E. Wayson, in charge of the Federal Plague Investigation Laboratory in San Francisco. The material (aspiration biopsy of a bubo or emulsion of rat spleen) is smeared on slides and also injected subcutaneously into a guinea pig or rubbed into a scarified area of the skin. (Every plantation hospital should have on hand at least a few guinea pigs. Some enterprising youngster of the plantation could be subsidized to raise them. As a side line, he might raise rabbits for Friedman tests; it is profitable, for an idle curiosity or a guilty conscience frequently will pay \$15.00 for an “inside tip”).

Infected guinea pig spleen is streaked on blood agar plate (preferably guinea pig blood, rabbit substitute). (5% blood, 2% agar in pH 7.6 infusion broth.) Colonies therefrom to slants of the same agar.



Stain original slides and colonies with methylene blue, Gram's stain, Laybourn's etc. and particularly with Wayson's stain (J. Inf. Dis., 39: (November) 1926). (Fuchsin 0.200, methylene blue 0.750, phenol 10 cc., water 200 cc., absolute alcohol 20 cc. Dissolve dyes in alcohol, mix phenol in water, then mix and filter. Bipolar stains poor in cultures but required in tissues.)

From slants, cultures are carried to differential media.

- a. Broth, infusion, pH 7.6 - stalactites or flaky suspension with tendency to precipitate and leave clear supernatant.
- b. Salt Flood agar (3% NaCl) slower and thinner growth with involution forms in 48 hours.
- c. Glucose broth (Bacto) acid, no gas, 24 hours and up.
- d. Lactose Broth (Bacto) no acid, no gas, in 5 days to 7.
- e. Litmus milk (Bacto) very slight acidity but usually remains neutral after 5 days to a week.
- f. Glucose phosphate medium (see Topley and Wilson, page 259) methyl red reaction, plague negative, yellow color.
- g. Broth - methylene blue reduction (see Topley and Wilson, page 260) works at 30°.

If you *must* forward a bubo or a rat spleen to a central laboratory, drop it into some mineral oil, U.S.P. Heavy. Send rat fleas in 2% saline or in mineral oil.

### ENTERIC DISEASE

There have been from time to time during the past several years small epidemics of enteric disease in Honolulu, characterized by nausea, rarely vomiting, discomfort or pain in the *opu*\* and many watery stools, some times with mucus, rarely with blood. These have been investigated in rather a casual fashion; no organisms from stools have been incriminated; a possible virus has been blamed; water analyses yielded no clues, so vegetables were under suspicion.

On Friday, October 3, 1941, the Honolulu County Medical Society met at the Territorial Hospital and was served a dinner which included Samoan crab, ripe and green olives, radishes, chicken - and beer. On Saturday and Sunday following, 26 of the guests had varying degrees of nausea, vomiting, prostration, pain, and diarrhea. Even as the shoemaker's children never have any shoes, so only two of these scientific sons of Aesculapius submitted stools for examination (the results at this writing are inconclusive of the use of sulfaguanidine, with dramatic success).

A new medium for investigating such enteric diseases made its appearance some time ago (Leifson, J. Path. & Bact., 40:581, 1935 and Paulson, May 1937 of Am. J. Med. Sci.) but only more recently does this medium seem to have come into popularity. It is the so-called Desoxycholate-Citrate Agar, now made in powdered form by the Baltimore Biological Labora-

tory, 432 North Calvert St., Baltimore, Md. It seems quite superior to Endo, Eosin-methylene blue medium, Purple lactose, etc., for isolation of the enteric group (suppressing *B. coli*), particularly for the dysentery bacillus (not Shiga) but also for the alkalescens, Sonne and Flexner subgroups of dysentery bacillus, as well as for typhoid, para A and para B. It is best used in combination with the same medium without the citrate. Russel double sugar and diagnostic agglutinating sera, in proper dilution, must also be used. These media are a bit expensive (the former \$2.75 per ¼ lb., the latter \$1.75 per ¼ lb.—of the former 73 grams makes a liter of finished medium, of the latter 46 grams makes a liter), but in spite of the price, since the powder keeps well, it should be on the shelf of every plantation hospital laboratory. It takes only a few minutes to make plates since autoclaving is not necessary.

Hardy *et al* (Public Health Reports, Feb. 24, 1939) reports on its use in the study of acute summer diarrheal diseases in some of the New Mexican Indian Reservations; he found it very useful and superior to the usual media.

It is quite probable that use of these media would throw some light on our small local epidemics or sporadic cases of enteritis and might be of great assistance in pediatrics, particularly during *Kona*† weather.

\**opu*: Hawaiian for abdomen, belly.

†*Kona*: district in south Hawaii; hence, southerly, used to designate the warm, humid weather experienced when to prevailing northeast trades give way to light breezes from the south or west.

### BREWER'S MEDIUM

John H. Brewer (J.A.M.A., Aug. 24, 1940) developed the so-called Thioglycollate Medium, made in powdered form by the Baltimore Biological Laboratory, selling for \$2.75 per ¼ lb. It is a clear liquid medium for culturing in one tube not only aerobes but also microaerophiles and anaerobes. It contains a little methylene blue as an indicator of anaerobiosis and the persistence of anaerobic conditions in the lower half of the tube is most surprising. It is an ideal medium for culturing biologicals—catgut, sera, plasma—for it nullifies the effect of merthiolate and phenol in the concentration usually used. Tubes, or, better, "vaccine stoppered" bottles of this medium should be in every operating room, for the unexpected situation that may demand bacteriological investigation.

E. A. Fennel, M.D.





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Menopausal  
Symptoms**

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Amniotin is available in Capsules containing the equivalent of 1000, 2000 and 4000 I. U. of estrone; in Pessaries containing 1000 and 2000 I. U. and in 1-cc. ampuls containing 2000, 5000, 10,000 and 20,000 I.U.

<sup>1</sup> Jeffcoate, T. N. A.: *Brit. Med. J.* 2:671 (Sept. 30) 1939.

*For literature address the Professional Service Department,  
E. R. Squibb & Sons, 745 Fifth Avenue, New York, N. Y.*

## Amniotin

A SQUIBB PREPARATION OF ESTROGENIC SUBSTANCES  
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# LEPROSY IN HAWAII II

## HISTORY

The origin of leprosy in Hawaii is not definitely known. According to Mouritz <sup>1</sup> there is no word in the Hawaiian language for leprosy, and the phrase *mai Pake* or "Chinese sickness" given to leprosy suggested a connection between the Chinese and the disease. In 1848 Hillebrand <sup>2</sup> described leprosy in Chinese immigrants in Hawaii. Wayson <sup>3</sup> states that prior to that, in 1798, thirty or more Chinese immigrants settled on the islands of Hawaii and Maui, and it is thought that they might have introduced the disease, since they came from southern China, where it was endemic. At about this same period, however, many Hawaiians had taken trips to China and the Orient, and they might have contracted the disease there and returned to propagate it in the islands. Though *mai Pake* seems to have taken hold as the Hawaiian name for leprosy it should not be implied that the Orient was the only likely source of the disease. Mouritz <sup>1</sup> records that Hawaii was most probably infected from several sources, as leprosy may have been carried by many of the mixed races that made up the crews of the whaling ships visiting these islands. Members of such crews came from the Azores, the Cape Verde Islands, the east and west coasts of Africa, India, West Indies and Malaya; in almost all of these countries endemic leprosy exists.

Though the exact time and manner in which leprosy made its appearance in the Hawaiian Islands can never be definitely settled, the fact remains that by 1864 the disease had reached epidemic proportions and definite steps to check its spread were taken.

As mentioned in a previous article, on January 3, 1865, the law to prevent the spread of leprosy <sup>4</sup> was enacted by the Legislature of the Kingdom of Hawaii. It became mandatory that all persons afflicted with leprosy be segregated at public expense. Kalihi Hospital was erected for this purpose in 1865, and, during this same year, land at Kalaupapa, Molokai, was purchased for a leper settlement. The first leprous patients were sent to Kalaupapa on January 6, 1866.

Due to lack of preparation and lack of housing facilities at the settlement, the arrival of the patients at Kalaupapa was as unhappy as was their departure from Honolulu. The many hardships they experienced after being separated from their loved ones must have been difficult to endure. It produced a fear and dread of segregation for other lepers who were about to be apprehended, so that the early years of enforcement of the segregation law were not without tragedy. In 1890 a leper shot and killed a deputy sheriff in Kona, Hawaii, when the latter attempted to capture him.<sup>1</sup> Armed resistance to apprehension took place on the island of Kauai in the Kalalau valley when the leper Koolau shot and killed a deputy sheriff in 1893. Further attempts at his capture resulted in the shooting of a squad of three soldiers who were sent from Honolulu. Failing in their mission the squad was ordered back to Honolulu. Koolau was never captured, and died five years later in isolation in Kalalau valley. In 1897 Dr. Jared Smith was shot and killed in his home in Koloa, Kauai.<sup>1</sup> The alleged cause of the shooting was to prevent him from signing a deportation order for a girl who was to be sent to Honolulu as a leper.

In spite of the difficulties encountered in inaugurating the segregation law, it was destined to prove successful and has been in force now for seventy-six years. It is believed that the segregation of active, infectious cases has been responsible for the reduction of an admission rate of 300 to 400 cases <sup>5</sup> annually to 32 new cases <sup>6</sup> in the fiscal year just passed.

## REFERENCES

1. A. Mouritz: "The Path of the Destroyer."
2. Quoted by A. Mouritz: "The Path of the Destroyer."
3. J. T. Wayson: Personal correspondence with the author.
4. Revised Laws of Hawaii, 1905; also Penal Code 1864.
5. Board of Hospitals & Settlement, Annual Report for 1940.
6. Board of Hospitals & Settlement, Annual Report for 1941.

EDWIN K. CHUNG-HOON, M.D.

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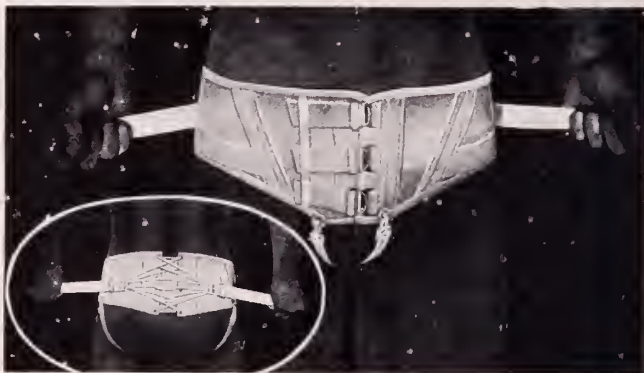
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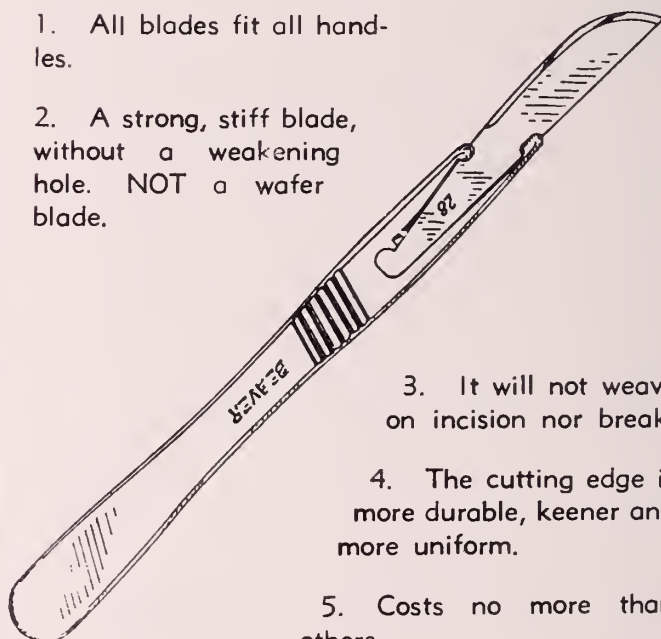


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# PLANTATION NEWS

## THE PLANTATION HEALTH PLAN

The suggested PLANTATION HEALTH CO-OPERATIVE PLAN published in the September issue was referred to the Councillor for each island for discussion with his county society, with the request that reports be sent back for the guidance of the Territorial Association.

The principal features of the plan were passed along for consideration, namely:

1. The proposed plan is modeled along the lines of the Hawaii Medical Service plan operating in Honolulu, in that it offers medical services to employed groups upon the payment of a specified monthly premium and the doctor is paid on a fee-for-service basis. The monthly premiums are substantially the same as those in the HMSA plan but payments to the doctor are very much below the fee schedule under which the doctors on Oahu are operating with the HMSA.
2. Under the proposed plan the Industrial Fee Schedule (Workmen's- Compensation fees), less 30%, will apply for all patients regardless of income. In the HMSA plan the Industrial Fee Schedule applies for the income group of \$100-150; 20% is added to this base for those in the income group of \$150-250 and another 20% for those earning \$250-350. (The discount of 33-1/3% taken from all bills last year—and reduced to 20% for this year—has all been preserved in the Physicians' Reserve Fund and will be distributed at the end of the year to the individual doctors, so that in effect the doctors under the HMSA plan receive 100% of the fee schedule.) Under the suggested plan the plantation doctor will receive:  

30% less than HMSA for patients earning \$100-150	
40%	" 150-250
50%	" 250-350
3. Even if the plantation physician is willing to accept such a large differential in fees, the doctor in private practice to whom the plantation employee may elect to go (since free choice of physician is permitted) may not find such a fee acceptable. The plan provides that if a plantation employee prefers to go to another hospital or retain a doctor or specialist other than the plantation doctor, the plan will pay such doctor only the industrial fee schedule less 30%, the balance to be borne by the patient. Experience taught us, under the early set-up of the HMSA plan, that nothing but confusion and many times bitterness results from the doctor's attempting to collect from the patient the difference between what the plan pays and what he bills the patient. So that while it allows free choice of physician, it does so by penalizing the patient. One major operation and prolonged hospital stay for which the patient pays one-third to one-half, would not be a very favorable demonstration of the value of monthly budgeting against illness.

4. The reorganized HMSA plan as operated in the last year and a half has shown a handsome surplus which will, after June 1942, be reflected either in a reduction of premiums, greater benefits to the patients, or increased fees to the doctor. Under the HSPA proposed plan, charging substantially the same premiums and paying from 30% to 50% less to the doctor, the surpluses to be accumulated can be expected to be a very substantial item in the control of the plantation company.

Comments from the various county societies and individuals follow:

### Hawaii:

"At a special meeting of the Hawaii County Medical Society held October 21st the proposed plantation health plan was discussed and the Hawaii Society went on record as being opposed to the plan as presented; that the Society would be opposed to any such plan regardless of its nature unless it first received the sanction of the entire Territorial Medical Association and not any particular group such as plantation physicians or physicians in private practice."

Edmund Tompkins, M.D., Secretary.

The special meeting referred to above had a large and representative attendance of plantation physicians and others. It was felt that the matter was one concerning all practicing physicians and not only those doing plantation work. If similar expressions of interest came from other County Societies, it was felt that it would be the duty of the Territorial organization to take an active interest.

"We are certainly not for the plan as presented but at the same time are in favor of the major principle of a plan. The Association of Hawaii County Plantation Physicians will meet to discuss the proposal."

"In a group of six plantation physicians, strangely enough only one knew anything about the plan except by hearsay. Several objected principally to the provision of the plan which permits the use of plantation hospitals by doctors from outside the plantation. There was serious objection to the inclusion of the high income group in the plan, namely those earning above \$200. a month. The differential in hospital prices was considered unfair."

"The Association of Hawaii County Plantation Physicians has discussed the plan in general though it has

not officially been asked to make any comment. If such a plan or a modified plan is to be presented they would be glad to discuss it as a group and offer comments and suggestions to the Hawaii Planters' Association (this is not the H.S.P.A.). They have agreed that they would like us to do this. We understand that several plantation managers recently met in Honolulu and discussed the plan along with comments and objections from their physicians and that a new plan is being formulated which it is hoped will meet the objections. It seems to me that further comment now should be confined to generalizations about the old plan and we should wait for the new plan."

"I can only speak for myself but feel that the proper plan, arrived at after thorough study by all parties in any way involved, would work to the advantage of everyone concerned. In my talks with several other physicians on this Island I believe this is the consensus. Most of them have not even copies of the present plan that is being discussed and those that have studied it or had it explained to them have objected to some sections of it."

### KAUAI:

"I am happy to advise that the Plantation Physicians on Kauai have gone into the subject of the Plantation Health Cooperative Plan rather extensively. The subject has not been taken up with the Society as a whole so far, because there has not been anything definite to take up. It has so far been more or less of a suggested plan which was originated by Dr. Larsen and suggested to the Plantation Managers. It is my understanding that Dr. Larsen is working in cooperation with the health committee of the HSPA and also with Mr. Bowman of the HMSA.

"It is the hope of everyone concerned that a plan can be devised whereby each one will be satisfied. Our Plantation Physicians have asked Dr. Larsen if he could come to Kauai and discuss the proposed plan before our Plantation Physicians.

"I am rather inclined to believe that this proposed plan which the Councillors evidently discussed at the meeting was the first draft of the plan and since that time it has been changed considerably. I feel that at the present time the plans which Dr. Larsen and Mr. Bowman are working on will be entirely satisfactory to everyone concerned.

"I am sorry I did not receive your letter before today since we have already had our October meeting of the Kauai County Medical Society and I do not feel we have sufficient material to go on to call a special meeting. However, I hope in due time we will have something definite and by our November meeting we will be able to discuss this question intelligently. I will be glad to send you the results of our meeting."

Sam Wallis, M.D., Councillor for Kauai

At a meeting of the recently organized Plantation Physicians of Kauai the proposed plan was discussed and several definite points were developed, as follows:

"That there was definitely a need of some type of plantation health service plan for those employees on sugar plantations making more than \$100. per month.

"That the Plantation Physicians felt that two fee schedules for the Island were not desirable if at all possible to avoid.

"Since the HMSA is well established and is practical, it or some plan similar to it should be adopted.

"And since it is expected that some definite steps will be taken at the meeting of the managers of the H.S.P.A. in December it is hoped that before that time a plan may be formulated which is wholly in accord with the medical profession as a whole in Hawaii."

### MAUI:

Nothing official has been heard from the County of Maui; apparently the plan has not yet been discussed by the County Society. Unofficially we hear, however, that the Plantation Physicians had already had a meeting on the subject. They had unanimously disapproved of the plan and had so notified their managers, so that so far as Maui is concerned the plan is probably out unless—as will surely not occur—it is forced upon the profession by the plantation managers.

### HONOLULU:

The plan has so far not been brought up for discussion at a general meeting of the Honolulu County Society. Following the meeting of the Territorial Council the matter was taken up with the Hawaii Medical Service Association and a special committee of that organization appointed to discuss the matter with the Health Committee of the H.S.P.A.

Progress has been made to the point where a new plan (probably the one referred to in the Kauai and Hawaii reports above), drawn up by Mr. Bowman, is being favorably considered. This plan incorporates the fundamental principles of the HMSA plan and the fee schedule already in effect under the HMSA plan. At present writing the Chairman of the H.S.P.A. health committee has offered to send a copy of the revised plan to all plantation physicians and a meeting of these physicians is expected to be called either before the December meeting of the plantation managers, or following it.

A meeting of plantation physicians with the Committee on Forms of Medical Practice and the Board of Governors of the Honolulu County Medical Society was called for late in October for a thorough discussion of the new proposal, and the membership will have an opportunity for its consideration at the November 7th meeting.

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*N. Y. State Jour. Med.*, Vol. 35, No. 11,590 *Arch.*  
*Otolaryngology*, Mar. 1936. Vol. 23, No. 3,306



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# MEDICAL PREPAREDNESS

Recognition for tasks voluntarily and gladly done is always appreciated, and it is therefore fitting that Resolution 14, passed by the House of Representatives of the Territory of Hawaii on September 24, be made public at this time.

## RESOLUTION

WHEREAS, due to the National Emergency now existing and the uncertainties which confront our Nation, generally, and the Islands comprising the Territory of Hawaii, in particular, it is desirable that all persons be prepared for any eventuality; and

WHEREAS, the Preparedness Committee of the Honolulu County Medical Society, recognizing this has organized and trained throughout the City of Honolulu many units for rendering first aid in case of disaster; and

WHEREAS, the Waialae Unit, this morning gave to the Members of the House a demonstration of their excellent training and capability for rendering first aid; now, therefore, be it

RESOLVED by the House of Representatives of the Twenty-First Legislature of the Territory of Hawaii, in Special Session assembled, that it take this means of expressing its appreciation of the successful efforts of the Preparedness Committee of the Honolulu County Medical Society in training so many first aid units, and of the great efficiency demonstrated by the Waialae Unit; and be it further

RESOLVED that these resolutions be spread on the Journal of this House and that duly authenticated copies thereof be forwarded to the Honolulu County Medical Society and to said Waialae Unit.

Since the report on Medical Preparedness published in the first number of the JOURNAL, several interesting developments have occurred. One was the decision of the Major Disaster Council to appoint Dr. H. L. Arnold as a member of the Executive Committee of the Council in charge of first aid units and ambulance service. He selected, as his advisory committee, the Preparedness Committee elected by the Honolulu County Medical Society, and, as his executive officer, Dr. Robert Faus, now a Major in the Medical Corps of the Army. The Disaster Council at the same time decided that the program for hospital expansion and possible evacuation should be turned over to Dr. Thomas Mossman. The hygiene and sanitation program, including inoculation and other preventive measures, is in the hands of Dr. M. F. Haralson of the Board of Health.

Since the last writing also the Legislature has passed, and the Governor has signed, the M-day bill making available ample funds for carrying out all of these projects. The Governor has not yet set up his Disaster Council nor have Territorial funds been apportioned to the counties. It is expected that the Governor will appoint a committee of advisors, one of whom will be the territorial coordinator. Neither the size of this committee nor its personnel have been decided upon as yet. This body will have charge of policies in general and the allocation of funds to the counties for defense purposes. It seems that the details of preparedness on each island will be handled by the county coordinator and his advisors.

The Japanese Medical Society has listed with us some 570 English-speaking Japanese to be trained in first aid and used as additional manpower in the units. The Japanese Medical Society is giving similar training to a large number of non-English-speaking Japanese. The problem of finding instructors to teach first aid courses to this large number of people has become rather acute and it is intended that funds be asked for to employ a few full-time teachers so that courses may be given during the day as well as in the evening, thus enabling the doctors who have been instructing to devote their energies to the management and training of their units. Dr. Faus is at present teaching a large class of people who will be available as instructors on a voluntary basis.

Considerable equipment for aid stations purchased by the City and County of Honolulu has been turned over to the Preparedness Committee and will be issued to the units.

## Report of the Emergency Medical and Ambulance Service of the Mayor's Disaster Council (October 10, 1941)

The Emergency Medical and Ambulance Service came into being at a regular meeting of the Honolulu County Medical Society in February 1941. A Preparedness Committee was duly elected and proceeded to recruit, organize and train volunteers for medical service in the field and the transportation of sick and injured to hospitals. Regular meetings have been held and an orderly procedure of training in accordance with plans and weekly schedules as outlined and directed from Headquarters has been followed, so that at the present time there are 20 units, (17 of which have received an initial issue of equipment) training twice each week at the following points:

Demonstration Unit  
Kaloaloe  
Kalihi-Kai  
Farrington  
Palama  
Kawanakakoa  
Manoa  
Punahou  
Lunalilo  
Kaahumanu

Pohukaina  
Kuhio  
St. Patricks  
Liholiho  
Waialae  
Thomas Jefferson  
Outrigger  
Wahiawa  
Kailua  
Kaneohe

AMBULANCE SERVICE - Two hundred and twenty (220) trucks have been volunteered by merchants for use as ambulances, ranging from ½ ton to 1½ ton. (Frames must be manufactured and installed to utilize them as ambulances.)

Ambulance Stations are located at:  
(3 ambulances at each unit)

UNIT TRAINING - The trained cadre in each unit has had eighty-two hours of instruction, which approximates 30% of total personnel required as of the first of August, and an additional 30% recruited and assigned to units as of October 1st, are now in classes receiving as above. The balance is to be recruited, enlisted, and trained as soon as the volunteers will report for assignment. The personnel of each unit when completed will consist of:

2 doctors	9 utility men
2 dentists	64 litter bearers
8 nurses	2 dieticians
8 surgical aids	2 motorcyclists
8 medical aid men	2 messengers
1 supply clerk	6 ambulance drivers
6 stenographers	

A change in the spelling of the name "Petrolagar" to "Petrogalar" has been announced by the Petrolagar Laboratories. The change is being made in both the product name and corporate name.

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"Because it has never been the intention of the company to imply that agar-agar was used for any other purpose than as an emulsifying agent, the last syllable of the former name has been altered in favor of the new spelling", officials said.

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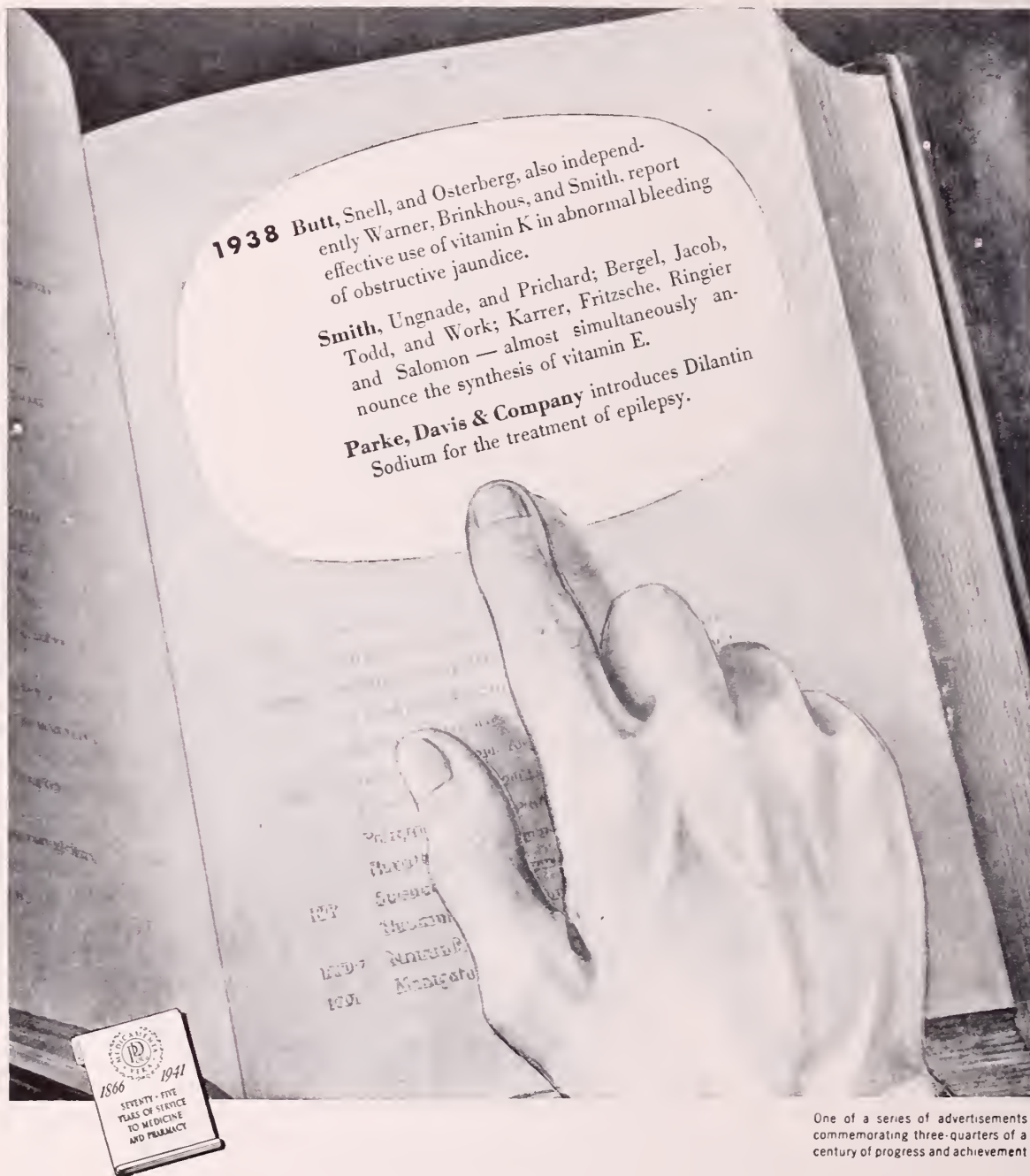
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# COUNTY SOCIETY REPORTS

## KAUAI COUNTY MEDICAL SOCIETY:

The meeting of the Kauai County Medical Society was held at the Wilcox Memorial Hospital at 7:30 P. M. September 10, 1941.

Members present: Drs. Chang Y. P., Ecklund, Liu, Umaki, Hark, Brennecke, Amlin, Wade, Wallis, Boyden and Kawaoka.

Guests: Dr. Beck, Dr. Chisholm, Cockett & Toney. Miss Ames of the National Youth Administration discussed a project they hope to start soon, namely a Hospital Attendance Course in nursing. 50 single, unemployed girls, age 17-24, to take a 6 to 9 months' course, at \$21.00 a month; 4 hrs. actual hospital floor duty together with study courses; probably 25 at Waimea Hospital and 25 at Wilcox. Qualified local nurse to instruct at \$150 a month. Each girl to have physical examination, including X-Ray and BWR. Physical examinations to be paid for at the rate of \$18.00 for 8 hrs. work. Total of \$300 so far appropriated for these examinations. Examiners appointed: Dr. Kawaoka at Lihue and Dr. Amlin at Waimea.

Since our last regular meeting, several months ago, our President had appointed Dr. Harl as Medical co-ordinator in line with other preparations being made on Kauai for Emergency Relief. Dr. Harl had made further appointments as follows: Dr. Brennecke, in charge of Supplies; Dr. Kuhns, Intelligence, Dr. Wallis, Plans & training and Dr. Boyden, Personnel. This group has adopted an Island organization consisting of six emergency Units: Waimea District, in charge of Dr. Amlin; Hanapepe, Dr. Betsui; Koloa, Dr. Waterhouse; Lihue, Dr. Y. P. Chang; Kapaa, Dr. Umaki; Kilauea, Dr. Harl. Organization work is proceeding.

The appointments made by the President, and the plans of the organization, were approved by the Society by unanimous vote.

A fee schedule to apply to the Selective Service Rehabilitation Program was discussed, and the Schedule in use by the Hawaii Medical Service Association was adopted.

A plan to establish a Consulting Staff for Samuel Mahelona Memorial Hospital was presented by Dr. Harl for consideration. As outlined, there were 18 specialties for which appointments were to be made. A questionnaire will be mailed to each Doctor asking the following:

1. Indicate whether interested in being given an appointment.
2. Signify specialty desired.
3. Make critical comments.

It was suggested that the Staff meet two or three times each year.

Dr. Brennecke read a paper on Sutures, which included their characteristics in actual use and knot-tying. It was asserted that the knot was the weakest point in any suture.

Webster Boyden, M.D., reporting

## MAUI COUNTY MEDICAL SOCIETY:

Minutes of meeting October 14, 1941, at Baldwin High School.

Members in attendance were Drs. Fleming, K. Izumi, Patterson, Von Asch, McArthur, Burden, K. P. Jones, Cowan, and Anderson. Guests included Major Cranston and Dr. Douglas Murphy.

Correspondence from Lederle Manufacturing Company concerning their generous supply of Sulfadiazine was discussed and each member urged to report their results on the use of this drug on the clinical forms supplied by the company.

Letters received from Drs. Compere and McKhann were read to the Society.

The following motion was adopted: That despite the offer of Puunene Hospital to accommodate Maui County's Index Medicus and any journals donated by Society members, it would be of greater convenience that these volumes be catalogued at the Maui Public Library, and that



the expense of maintaining this source of bibliography be financed exclusively by the medical society.

The Committee on Resolutions, Drs. R. J. McArthur, H. Izumi, and E. H. Anderson, submitted a resolution as follows:

#### RESOLUTION

WHEREAS: The Territorial Medical Association has greatly increased dues to carry out increased functions which the local county societies could not well undertake separately, and

WHEREAS: Geographical separation of The Maui County Medical Society presents problems of relationship, and

WHEREAS: Representatives from The County Medical Society to Territorial Meetings could be guided by a statement of general policy,

BE IT THEREFORE RESOLVED: That we hereby adopt the following general policy which may guide officers and committees of the Territorial Association and enable delegates from Maui to apply them to specific situations as they arise in committee; viz,

In all transactions of the Territorial Association the Maui County Medical Society favors equal taxation in lieu of which it receives its per capita share of benefits—any expense resulting from geographical isolation from Oahu to be a responsibility of the Territorial Association.

#### DISCUSSION

- I. *Library:* Creation of a Medical Library is a commendable project; pooling of interest in only one library for the Territory is practical; location of the library in Honolulu is logical due to accessibility to the majority. Application of our policy as stated in the resolution would call for (1) an Index Medicus for Maui, and (2) a service in Honolulu which would enable members of Maui Society to borrow by mail periodicals and books. All such expense to be assumed by Territorial Medical Association.
- II. *Territorial Society Meetings in Honolulu.* In all meetings of Council, Delegates, and Special Committees, other than the Annual Meetings, wherein a representative from Maui attends in Honolulu, the responsibility of furnishing transportation belongs to the Territorial Association and not the County Society as it is at present.
- III. *Mainland speakers, refresher courses, etc.* Outside Island Societies should be informed of imported speakers and instructors and have the privilege of voting as to whether such men be sponsored by the Territorial Association or by the Honolulu County Medical Society. When such responsibility is undertaken

by the Territorial Association this organization should be taxed equally with Honolulu Society, should be permitted a percentage of his or her time proportionate to the number of County Society members in the Territorial Association, and that expenses of transportation to Honolulu and to the outside island be a responsibility of the Territorial Association.

The resolution was discussed by individual clauses, voted upon in this manner, and passed unanimously.

Dr. McArthur presented a problem brought up by Lieut. South, Commanding Officer, VJ3, Puunene, Maui. The discussion centered about medical attention for navy enlisted personnel residing on Maui and ways and means whereby this personnel and dependents could be self-sustaining as regards medical and hospitalization fees. After discussion by members of the Society, a resolution was adopted and a copy of this complete agreement by the Society mailed to Lieut. South. A copy of this letter is maintained in the secretarial files.

A suggestion was made from the floor that all service men be invited by the Secretary to all meetings, business or otherwise. The suggestion will be duly acted upon by inserting the names of permanent and locum tenens officers on our mailing list.

All future meetings will be held at Puunene Hospital due to lack of coverage by telephone at our present meeting place.

Emory H. Anderson, M.D., reporting

#### HAWAII COUNTY MEDICAL SOCIETY:

The semi-annual meeting of the Hawaii County Medical Society was held September 6, 1941 at Kona Inn with Drs. Seymour, Hayashi, Kurashige and Balfour as hosts. There was an excellent turn-out of members. Present at the meeting were Doctors Bergin, Carter, Loo, Brown, Yuen, Yoshina, Schattenburg, Ecklund, Woo, Kurashige and Hayashi. Some of them arrived by boat after enjoying a trip around the Island and after catching several nice fish. The usual course of iced tea and lemonade was enjoyed, followed by the regular meeting of the Society. Dr. O. Lee Schattenburg of Honolulu was the guest of the Society and gave us some interesting remarks.

It was decided to cooperate with the N.Y.A. by facilitating the examination of nurse's aides for hospital duty. The tentative program of post-graduate instruction for the year submitted by the Territory Association was discussed. Our Society appreciates being allowed to enter discussions about who the guest lecturers are to be and believes that the program should be made Territorial-wide instead of being merely for Honolulu.

Two applications for membership, by Drs. Richard Hata and Ivar Larsen, were referred to the Board of Censors.

Dr. Patterson read a letter from Dr. Compere thanking the Society for the hospitality accorded him while here and also for the kind remembrance given him.

After the meeting a sumptuous banquet was enjoyed by all. To add spice to this meal there were the usual, frequent nursery rhymes interpolated by Dr. Clarence Carter and others. Following banquet, "Old Maid" was played using matches for money. Dr. Schattenburg took all the matches back to Honolulu with him.

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The 199th monthly meeting of the Hawaii County Medical Society was called to order by President Wm. Bergin at 7:45 p.m. at the Hilo Memorial Hospital.

Dr. Eklund presented a young lady of 10 years as a demonstration of Ollier's Disease. Several signs and symptoms of the disease were very ably demonstrated. Dr. Eklund gave a very interesting and comprehensive review of the disease.

The Society elected Dr. Hata and Dr. Larsen to membership and the transfer card of Dr. K. Yoshimura was turned over to the Censorship Committee.

The Secretary was instructed to furnish the Tuberculosis Society of Hawaii with a list of the present members of the Society from which they could take names in rotation to carry out school survey tuberculin tests.

A communication was read from Dr. Clarence E. Fronk of the Selective Service Board submitting a fee schedule by which selectees in I-B and IV-A classifications could get corrective work done to make them eligible for selective service. This fee schedule had been adopted by the Honolulu County Medical Society and it was intimated that we might also give our approval. The plan is strictly voluntary on the part of the selectee. It was voted

that the Society go on record as favoring the plan of prehabilitation of selectees without any special reference to a fee schedule.

Dr. Sexton started a discussion on a recent plan proposed to many of the plantation physicians and other private physicians regarding an insurance scheme for Filipinos. His chief objection was that it is illegal and unethical for any physician to give his medical experience or information regarding medical contacts, to an insurance company. His second objection was that persons so insured did not receive compensation until 90 days after the illness. The insurance company had requested that physicians certify as to the health of the applicants and those not being certified by the physicians would later be sent to some physician for a medical examination. Otherwise this examination would not be necessary, providing the doctor gave his approval of the health of the applicant. It was felt that any men not approved by the physicians would be dropped and no attempt would be made to insure them. After considerable discussion about this insurance plan, it was voted that the secretary refer the entire scheme to the Policy Committee of the Territorial Medical Association for their opinion on procedure.

Dr. Keay read the minutes of the Preparedness Committee meeting and also requested from the Society some indication as to how long this committee should act. It was voted that the committee serve until the annual election of officers in March.

Meeting adjourned at 9:25 p.m.

Edmund Tompkins, M.D., reporting

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## HONOLULU COUNTY MEDICAL SOCIETY:

Summary of Board of Governors Meeting  
held Friday, October 3, 1941.

New members taken into the society today were Dr. Robert Wong, ophthalmologist, Dr. Robert H. Lee, ophthalmologist, formerly located on Maui, and Dr. Paul Liljestrand. Dr. Haralson's status was changed from Regular to Service Membership starting with the next fiscal year.

Approval was given to the Post Graduate Committee's recommendation that Dr. John Moorhead, who expressed willingness to come to Hawaii, be invited to give a series of lectures on Traumatology in December, and Dr. Carl Meyer of California be invited to come in the spring for the annual

meeting of the Territorial Association. For the guidance of the Post Graduate Committee it is understood that the funds collected from the special assessment of \$2.00 per member for the year are definitely earmarked for Post Graduate expense but that expenditures exceeding \$25.00 must have the prior approval of the board.

Recognition and appreciation for the work done by the Preparedness Committee of the Honolulu County Medical Society was recorded by the Legislature in House Resolution #14, which resolution appears under the heading of "Preparedness Activities."

An expression of the Board was sought by the Chairman of the Library Committee as to whether any portion of the library should be used for other than library purposes, and it was voted that the library be used for no other purpose.

Report was made of the Society's participation in the Industrial Exposition in cooperation with the Board of Health, Public Health Committee, and the Tuberculosis Association in presenting the "Theater of Health" at which were shown nightly four health films. It is estimated some 1500 people viewed the films.

Requests have been coming in to the Society soliciting its aid in securing physicians to render medical services, principally in connection with defense projects and personnel. It was decided that as these requests come in the Board will circularize the membership with particulars, and it requests that application for such assignments be made through the office of the Secretary. Considerable embarrassment and misunderstanding may arise where applications do not go through the regular channels.

It was reported that as a result of requests thus made, Dr. Dickson has opened offices in the housing area outside of Hickam Field; the Fronk-Wynn Clinic is providing emergency medical service and consultation on public health aspects to the naval defense workers cantonment; and Drs. Ernestine Hamre, Marie Faus and Ellen Chou are conducting the N.Y.A. nurse aid examinations.

Endorsement was given to the Honolulu Society for the Hard of Hearing in its plans for the National Hearing Week.

It was reported that the Chamber of Commerce is paying for the Ampro projector for the Mabel Smyth Building and while the \$200 given by the Medical Society is therefore returnable, the Building Management requests it be left available for

the purchase of a slide projector adjustable for 2x2 and 3x4 slides. This was agreed to.

Request from the Nursing Service Bureau that an extension telephone be arranged for and that the Society pay for two index cards purchased by the Bureau for listing physicians' names was approved.

The meeting announced for last month to cover the Washington trial proceedings, and postponed again this month, due to the sudden departure of Mr. Anthony for the coast, will be held in November, at which time also will be brought up several matters relating to contract practices.

A. W. Duryea, M.D., reporting.

### **Regular Meeting Held Friday, October 3, 1941, Territorial Hospital**

About 50 members and many Army and Navy physicians were the guests of Dr. E. A. Stephens and the staff of the Territorial Hospital at Kaneohe. Following the dinner a scientific program was presented as follows:

Address of Welcome—Mr. O. F. Goddard, Director of Institutions.

Announcement by Dr. H. L. Arnold of new set-up of Preparedness Committee.

Summary of Board of Governors meeting read by Dr. Gaspar.

Demonstration of electrically-induced shock.

Some Special Characteristics of Military Psychiatry—

Lt. Col. F. E. Weatherby, M.C., U.S. Army  
Dr. E. E. McNiel—Discussant

Hereditary Sclerosis—Mixed Form. Case Presentation

Dr. R. D. Kepner, Clinical Director, Territorial Hospital

Dr. R. B. Cloward—Discussant

Some Aspects of Therapy in the Psychoses

Lt. F. L. Seeley, M.C., U.S. Naval Reserve  
Wilson's Disease (Hepato-Lenticular Degeneration). Case Presentation.

Dr. Dorothy S. Natsui, Territorial Hospital  
Dr. R. B. Cloward—Discussant

Chinese Medicine—Some Observations

Dr. George Ching, Territorial Hospital

A. W. Duryea, M.D., reporting.

### **Summary Of Special Meeting Board Of Governors and Committee On Forms Of Medical Practice held Friday, October 24, 1941.**

**Preparedness Committee:** Dr. Arnold appeared before the Board in behalf of the recent change in the set-up of the Preparedness Committee and



invited questions so that he might clarify the situation. He felt there was no other way open than to come under the general disaster program since the medical unit program needed support of approximately \$1,000 a month for personnel which would be forthcoming from no other source. There was fear expressed that joining up with the governmental agency would put the control in political hands, but Dr. Arnold felt that as long as a medical man was represented on the Disaster Board this could be avoided.

Dr. Arnold explained the circumstance of the baseball fund, stating that the money was turned over to the Mayor's Committee upon receipt of a letter from the Finance Committee Chairman assuring him that the funds were to be used for medical units. The Mayor failed to recognize this commitment. Legislation subsequently introduced was dropped upon the Mayor's promise to the Legislature that the money would be used for medical units. Dr. Arnold, however, has so far experienced difficulty in making any expenditures against the Fund.

A vote of confidence was given Dr. Arnold for everything he has done.

**Hospital Expansion:** Dr. Haralson asked the help of the Medical Society to appraise the hospital situation in Honolulu to determine whether a shortage of hospital beds exists. He wished this for his guidance in the consideration of requests under the Lanham bill.

A committee of three was appointed to meet within the week and report back to the Board of Governors.

**Plantation Health Cooperative Plan:** It was reported that since the Board had received a copy of the plan from Territorial Council, the

plan had been circulated to the entire membership through the Journal and comments have been received from the other counties; that the proposed plan was discussed with the H.M.S.A. which appointed a special committee to negotiate with the H.S.P.A. in the hope that a plan more in line with H.M.S.A. plan both as to principle and fees would be accepted by the H.S.P.A.

Dr. Molyneux reported as a member of that committee that the reaction on the part of the H.S.P.A. committee was indeed favorable toward the new proposal and that the H.S.P.A. would call a meeting of the plantation physicians before or after the plantation managers' meeting in December. It was suggested that a joint meeting be held of the Board of Governors and the Committee on Forms of Medical Practice with the plantation doctors either Thursday or Friday of this week, Drs. Chandler and Thompson now in the Navy to be included.

**H.M.S.A.** It seems that several members were not notified properly of the last H.M.S.A. meeting and the Secretary was instructed to remind the H.M.S.A. regarding this.

**Blood Plasma Bank:** Letter from the Public Health Committee of the Chamber was read, requesting expression from the Medical Society if in its opinion "the blood plasma bank might reasonably be expected to be an important factor in the conservation of the health of the port" and if so would "200 flasks form an adequate basic supply."

It was the consensus that the blood plasma bank is an important factor as stated above and that 200 flasks should be regarded as only a beginning. The Secretary was instructed to so advise the Public Health Committee.

A. W. Duryea, M.D., reporting.



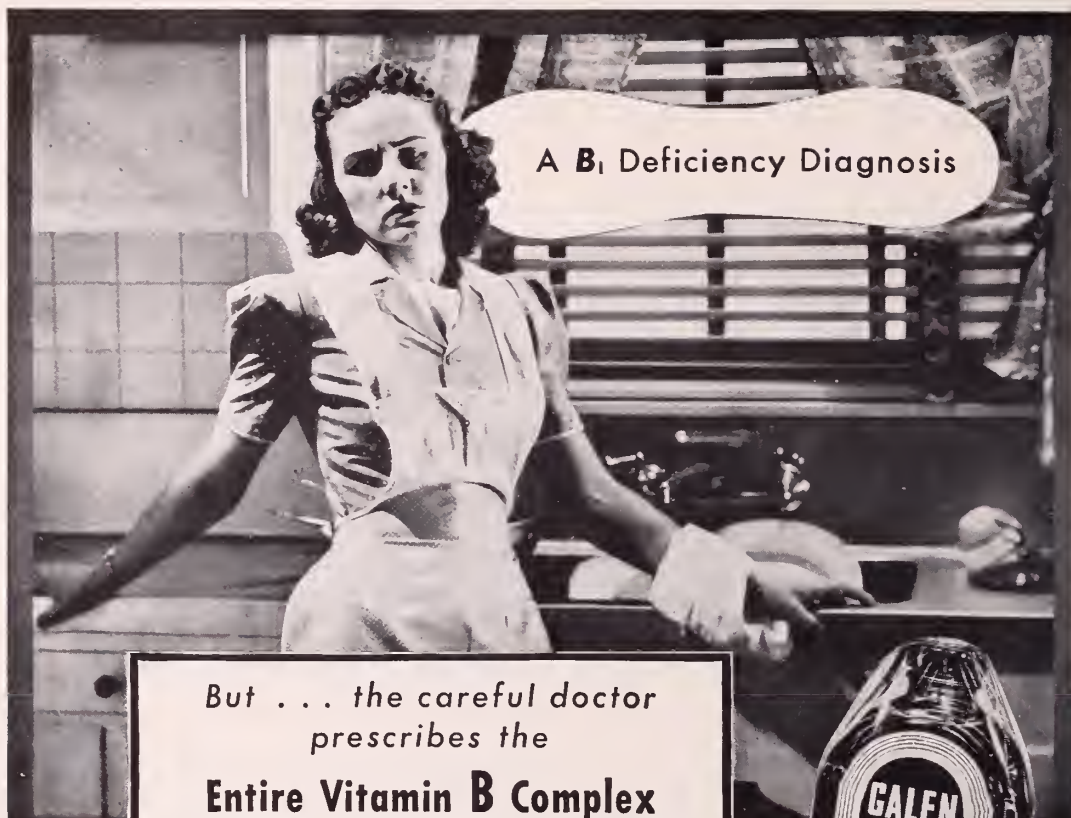
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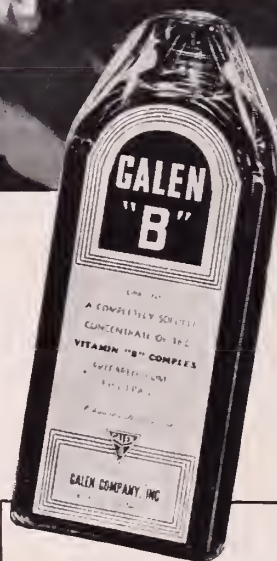
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# NOTES AND NEWS

## COUNCIL MEETING—NOVEMBER

It is very likely that a meeting of the full Council of the Territorial Medical Association will be called for the latter part of November. No definite date has been set yet due to the absence on the mainland of Dr. Craig, the President. Councillors should be prepared to voice the wishes of their county societies on the matter of a plan for medical service to plantation employees earning over \$100 per month so that action may be taken in time to make recommendations to the HSPA prior to their plantation managers meeting early in December.

Councillors should notify the Secretary of the association if there are other matters for the agenda of the forthcoming meeting.

## POST GRADUATE LECTURES

Dr. John Moorhead of New York City has accepted the invitation of the Honolulu County Medical Society to come to Hawaii for a series of post graduate lectures on traumatology. He arrives on December 3. The lecture topics and dates will be publicized later.

Efforts are being made by Dr. Gordon, who is chairman both for the Honolulu County Post Graduate Committee, and the Territorial Post Graduate Committee, to arrange for as much time as practicable on the other islands. This itinerary will also be made known as soon as we learn how much time Dr. Moorhead will be able to spend in the islands.

No hard and fast territorial-wide post graduate program has as yet been worked out, and, pending such, the Honolulu County is still carrying the responsibility for bringing the lecturer to the islands. This is made possible by a special assessment of \$10.00 annually which the members of the Honolulu County Medical Society pay over and above their regular annual membership dues.

## NEW MEMBERS

WONG, ROBERT T.—Jefferson Medical College, 1936. Ophthalmology. Jade Bldg. Honolulu.

LEE, ROBERT H.—Loyola University, 1925. Ophthalmology. 1126 Punchbowl St., Honolulu.

LILJESTRAND, PAUL HOWARD—Harvard Medical School, 1937. Aiea Hospital, Aiea, Oahu.

HATA, RICHARD—Maui County Medical Society

LARSEN, IVAR—Maui County Medical Society  
ties in the East, Middle West and on the Pacific Coast.

We omitted to report in our last issue that Dr. R. D. KEPNER had just returned from a six weeks' trip to the mainland during which he visited hospitals in several cities.

Dr. C. S. CULPEPPER is currently enjoying a Montana hunting trip with Sonny Bogan. He plans to visit the Mayo Clinic while on the mainland.

Dr. LOUIS L. BUZAID is the new full-time radiologist at Queen's Hospital, and director of its X-ray Department. His services are available to all members of the staff for discussion of cases. Dr. Buzaid comes from Jefferson, in Philadelphia, and is a diplomate of the American Board of Radiology.

The entire Territory was recently honored in the person of Dr. F. J. PINKERTON by his election to the Vice-presidency of the American Academy of Ophthalmology and Otolaryngology.

Dr. N. R. SLOAN has been appointed to take Dr. I. D. HIRSCHY's place as resident physician in charge of Kalaupapa Leper Settlement, during the latter's leave of absence on the mainland. Dr. Sloan has been assisting Dr. Hirschy since last July, and has recently been licensed to practice medicine in the Territory.

Dr. O. E. JEFFREYS has left Honolulu and is at present in Los Angeles.

Dr. D. L. BURLINGAME has returned from an extended mainland vacation. He spent considerable time in hospitals and clinics there—some of it as a result of breaking his right forearm while roller skating.

Dr. and Mrs. RALPH B. CLOWARD recently announced the birth of their second daughter, Karen. Dr. Cloward has left by Clipper for Los Angeles to attend the meeting of the American Academy of Neurological Surgery, to which he was recently elected.

Dr. RICHARD LEE of the Board of Health has been giving a series of lectures on community health needs. The lectures are sponsored by the Volunteer Placement Bureau.

Dr. J. H. FARRELL has returned from his mainland trip and is resuming his practice at the Pantheon Building.

The new resident pathologist at Queen's Hospital is Dr. LOUIS HIRSCH, a graduate of New York University, 1937.

Dr. LOUIS GASPARD is planning a quick trip to the mainland via Clipper and plane, leaving here on November 7th and returning December 18th.



DR. WM. JOHN HOLMES has been heard over the radio lately on the subject of War Deafness.

DR. WILLIS F. HUME has joined the Medical Group doing general surgery.

DR. H. M. JOHNSON is instructor at the University of Hawaii to the nurses taking the Public Health nursing course. His lectures deal with the methods, diagnosis and modern treatment of syphilis and other venereal diseases.

DR. HARRY ARNOLD, JR. leaves by clipper in December to attend the meeting of the American Academy of Dermatology and Syphilology in New York. He will take the American Board examination and return on December 22nd, also by clipper.

The great activity in the Mabel Smyth Building last week was occasioned by the annual meeting of the Hawaii Territorial Dental Society. The two-day session in-are available to the doctors for large and small meetings, board luncheons, teas and other forms of receptions in the but the building is prepared to serve lunches with ease to cluded a full program of papers to which several M.D.'s can be. 3,028 persons have been served at committee and were invited to discuss medico-dental topics. DR. O. LEE SCHATTENBURG enjoyed appearing before the dentists to tell them how "An Obstetrician Looks at Dentistry;" DR. F. F. ALSUP discussed "Cysts of Dental Origin;" DR. E. E. McNIEL discussed the "Relation of Psychiatry to Dentistry", and DR. J. E. STRODE informed them of the "New Drugs Used in Surgical Procedures and Treatment of Pain."

Table clinics were held in the doctor's board room and on the downstairs lanai. The dentists had an opportunity to inspect the medical library and a chance to sample Miss Eyman's catering at lunches served on both days on the lanai and in the nurses lounge.

Apropos of the above we would call to your attention that not only the auditorium and the doctors' board room groups up to 16 or 20, and it is surprising how conducive to informal discussion the cool environment of the lanai

### VITAMIN K USED IN MATERNAL HEALTH CONFERENCE.

The Medical Advisory Committee to the Bureau of Maternal and Child Health announced at their August meeting that because the value of vitamin K in preventing hemorrhagic disease of the newborn had now been established, this vitamin would henceforth be administered routinely to expectant mothers attending their maternal health conferences. They will be given a 2 mgm. tablet daily for about 10 to 14 days ante-partum.

The first paid subscription to the JOURNAL has come in from Dr. Mouritz. Dr. Mouritz is the author of the famous Path of the Destroyer, an authoritative history of leprosy in Hawaii. We hope it may be possible for Dr. Mouritz to contribute something from his store of experiences with the disease, to some future issues of the JOURNAL.

### DRUG SHORTAGES

Physicians are already sharing, and are likely to share more in the very near future, in the general nation-wide difficulty of obtaining materials with which to do their work. Many drugs are already unobtainable in the Territory or likely to be had only at a premium. *Compound solution of cresol, zinc oxide, and boric acid* are still available here in very limited quantities, but can no longer be obtained from mainland sources and will not be obtainable for some time unless priority rulings are modified. Some drugs are no longer available anywhere in the Territory, but may yet be obtainable from the mainland. This group includes *atropine, homatropine, and crude coal tar. Rubbing alcohol and ichthyol* are, or are about to be, rationed in restricted quantities. It is expected that some drugs may become almost prohibitively expensive. So far *formaldehyde* is the only one that has been seriously affected in this way.

So far the pathologist, compelled to find a substitute for cresol as a general laboratory disinfectant and threatened with the necessity of getting along without formaldehyde as a fixative, is discomfited a bit but not seriously hampered in his work. The ophthalmologist has for the most part a relatively large stock on hand of atropine and homatropine, though his plight when this is exhausted may well be a very serious one. The dermatologist and general man are perhaps the most extensively threatened, by the loss of boric acid—for soaks and wet dressings and bland ointments; crude coal tar—really indispensable in the management of infantile eczema; zinc oxide—a basic ingredient of zinc paste, zinc oxide ointment and calamine lotion; and ichthyol. The loss of all traditional standbys in the management of eczema in its various forms and stages, will be very difficult indeed to withstand. Shortages of this sort do not catch the public imagination as might shortages of ether or adhesive tape or other more familiar medical supplies, but they are potentially serious none the less. It would appear that an investigation of their relative necessity might be in order.

Our first exchange subscription is with the Pennsylvania Medical Journal. Dr. Donaldson, the Editor, writes: "Wishing the Hawaii Medical Journal great success and its editorial staff increasing satisfaction with the results of their labors, we hasten to add your "baby" to our Exchange list."

## THE HAWAII MEDICAL SERVICE PLAN

On May 31, 1941, the Hawaii Medical Service Association ended its third year of operation and its first year under its agreement with the Honolulu County Medical Society.

The 33- $\frac{1}{3}$ % deducted from all doctors' bills and held in the Physicians Reserve Fund is fully in tact and amounts to \$6,148.89. During the coming year the Association will deduct only 20% instead of 33- $\frac{1}{3}$ % from all doctors' bills and this will also be placed in the Physicians Reserve. It is hoped that at the end of the year the full fee schedule rates, without any discounts, will be paid on all bills.

As many of you will recall, the Association began three years ago with 600 members. Today we have approximately 5,000. This is directly due to extension of the plan to include industrials and the low salary employee. In the past year industrial firms have shown an increasing interest in the plan for their employees, and we have at this time 121 firms insured. Many of the employees insured are earning less than \$75.00 per month.

Dr. Fred Irwin, retired, has been with the Association for the past year as medical director and has been doing an excellent piece of work. Dr. Irwin is available at the Association offices each weekday between 10 and 12 a.m. and we urge you to call him whenever you are in doubt as to the procedure in any case.

Medical insurance plans operated by state medical societies or by county societies are gaining interests on the mainland. There are several such plans now in full operation—in New York City, Michigan, California and Oregon. The Hawaii Medical Service Association keeps in contact with these and we feel that our three years' experience has given us quite a jump on these other plans. None of them are exactly alike, there is great variation as to benefits and other details, but essentially they are all endeavoring to serve the same fundamental purposes.

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JOSEPH E. STRODE, M. D.

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### SURGICAL TREATMENT OF CRANIOCEREBRAL WAR WOUNDS

R. B. CLOWARD, M. D.

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### MODERN TREATMENT OF BURNS

F. J. HALFORD, M. D.

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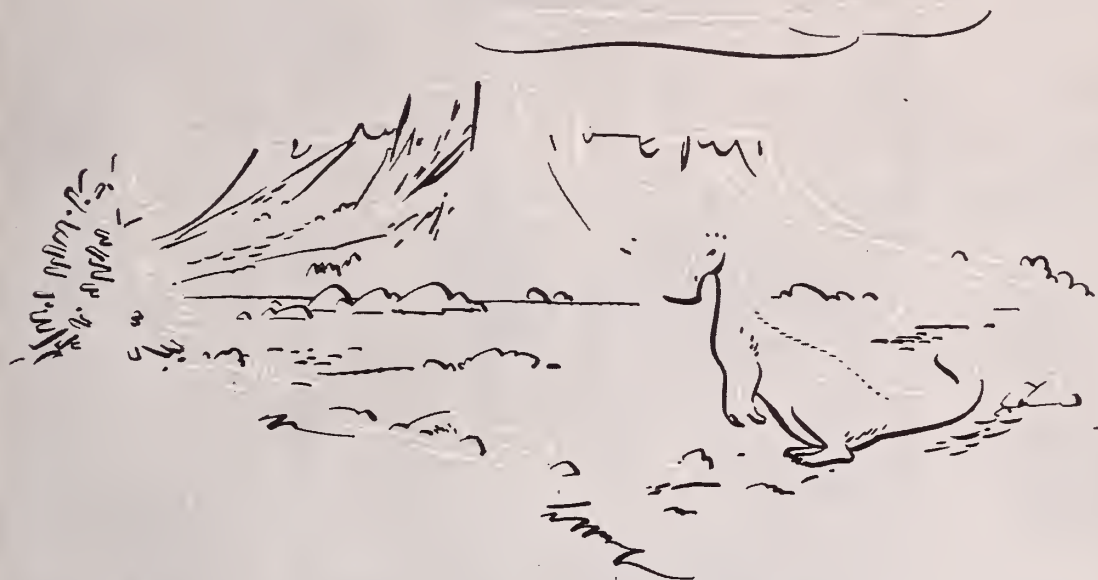
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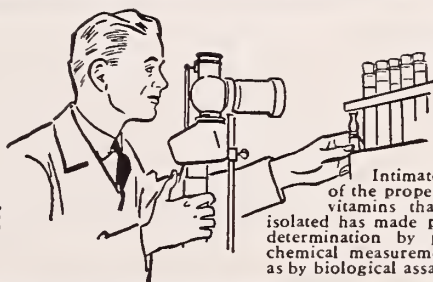
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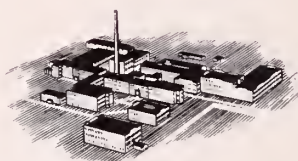
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# War Came to Hawaii

And how did it find us?

Providence could not have been kinder to the boys who had their baptism of fire on that morning of surprise, than by having in Honolulu Dr. John J. Moorhead, veteran of the last world war, and authority on traumatic surgery.

Only three days prior to the 7th, Dr. Moorhead arrived to give to the doctors of the islands an intensive postgraduate course in the handling of war injuries. And on the fateful Sunday morning a crowded hall of doctors awaited his lecture on burns. For three sessions he had drummed into a record audience of 300 civilian, army and navy doctors the several cardinal points of procedure in the handling of wounds. And they certainly were applied that day, Sunday the 7th, not alone by the Army and Navy surgeons but by the 20-odd civilian surgeons and physicians who all that day and night assisted their military colleagues in caring for the many casualties brought to the military hospital. No need for the surgeons to hesitate in the face of the ugly, extensive wounds that came into their hands. Dr. Moorhead had told them what to do, simply and with the authority of a man of experience. And he went as eagerly as did the civilian doctors when the call that interrupted and temporarily terminated the lectures, came from headquarters.

And more important, Dr. Moorhead and his pupils had the keen satisfaction of seeing the results of their work. Only 11 cases of gas gangrene (all of which recovered) and "not a teaspoonful of pus—not a serious infection" was what he reported weeks later, just before his departure. What greater reward could any physician ask!

Said Dr. Moorhead in his farewell to the physicians on December 30th:

"Honolulu has been the proving ground for the technique of handling war wounds. I shall recommend that this technique be adopted universally throughout the country."

And what he said further is also recorded, not with the idea of glorying in self-praise, but that it becomes a matter of record:

"The United States of America owes you, the civilian doctors of Honolulu, a debt of gratitude for the work you did on December 7th, and I shall make it known in high places what you did here."

In inviting Dr. Moorhead to come to Hawaii, our Post-Graduate Committee by design had in mind to prepare the civilian doctors particularly against just such an incident as occurred, but it had no idea that the knowledge and guidance it sought would be so quickly applied. Every physician, Army, Navy and civilian, can be thankful to that committee for its forethought and its choice of the man.

This story would not be complete, if attention were not directed to the

swift and competent mobilization of the ambulance service and first aid units under the direction of Dr. H. L. Arnold Sr. and Dr. Robert B. Faus, acting for the Honolulu County Medical Society's Preparedness Committee, and the work of the blood bank under the direction of Dr. F. J. Pinkerton and Dr. John Devereux. Within an hour 18 first aid units went into action, and the Preparedness Committee had 100 trucks rolling within an hour, some immediately, to the scene of combat at Hickam Field and Pearl Harbor for the transportation of casualties to the Army Hospital. Many comments were heard about their capable performance and

"I WAS GREATLY PLEASED TO SEE WHAT A FINE JOB THE MEDICAL PROFESSION OF HONOLULU DID IN THE RECENT EMERGENCY. THE AID WHICH IT GAVE TO THE MILITARY FORCES OF THE ISLAND WILL ALWAYS BE A BRILLIANT CHAPTER IN THE HISTORY OF MEDICINE IN OUR COUNTRY. DR. ARNOLD AND DR. PINKERTON DESERVE THE HIGHEST PRAISE, SO TOO DO THE MANY CIVILIAN SURGEONS WHO SO SPLENDIDLY GAVE OF THEIR EFFORTS. THE VERY LOW MORTALITY WAS IN PART DUE TO THEIR COOPERATION. NO ONE WILL EVER DOUBT THE VALUE OF THE SULFONAMIDES AND OF PLASMA IN THE TREATMENT OF WAR CASUALTIES. THE EXPERIENCE HAS BEEN OF ENORMOUS HELP IN PLANNING FOR THE FUTURE. GREETING TO MY FRIENDS."

DR. I. S. RAVDIN  
PHILADELPHIA

days later there was still great speculation as to who had dispatched them. Only 4 of the 18 first aid stations took care of casualties, but all of them were manned and ready for action. One—at Lunalilo School — was actually bombed, but promptly rallied and reestablished itself nearby.

The meagre supply of 200 flasks of plasma in readiness was immediately dispatched to Army, Navy and civilian hospitals and a feverish activity was begun to augment that supply.

Forever be it said for the civilian population of Honolulu, that it responded as one man to the needs of the day. It took some time for the transition to take place in the minds of all of us that this was not a maneuver, that the Japanese had actually arrived—an utterly inconceivable reality. It took some time to convince most of

us that the smoke arising from Pearl Harbor and Hickam Field was not a burning cane field or a burning oil tank, or a bit of chemical realism added to routine maneuvers; and many of us watched and commented on the maneuvers and the puffs of smoke in the sky. Not one credited the first reports that it was an attack, but when the truth was brought home there was no hesitancy or panic. Radio orders and instructions were carefully followed out and orderliness reigned throughout.

That word *orderliness* cannot in honesty be applied to the weeks that followed in an attempt to get things organized. However, organizations have been shaken down finally and there is evidence of planning coming to the top.

—E. D. B.



Dr. Moorhead (seated, left center), Mrs. Moorhead (standing, center), and members of the Honolulu County Medical Society, following presentation of a commemorative plaque by Dr. James R. Judd.



# Principles of Traumatic Surgery

Notes on post graduate lecture series given by John J. Moorhead, M.D., Professor of Clinical Surgery, N.Y. Post Graduate Medical School, Columbia University (Ret.).

## TRAUMATIC SURGERY

Dec. 4, 1941

Traumatic surgery is part, and a very large part, of general surgery. It has no selective action and may involve several parts at the same time. I shall speak of certain outstanding symptoms and methods of treatment in common injuries.

A very good starting point is that very difficult and important hand infection group. Next to the eye, the hand is of greatest importance. It is my belief that infection of the hand is treated more poorly than any other type of traumatic surgery.

Any break in the skin should never be disregarded. There is no such thing as a clean accidental wound. Every wound that is not made with surgical intent is already infected and should be so regarded. Our problem then is the treatment of infected wounds.

### GOLDEN PERIOD

What are the essential things in regard to repair and recovery? What are the determining elements? Is it the source—a razor, a piece of glass, a nail? All these play a part, but the time element intervening between receipt of the injury and the time of institution of adequate treatment is probably the most important thing. There is in traumatic surgery what I call the "Golden Period"—the first six hours elapsing between the injury and the institution of care. I was a general surgeon before I became a bone setter and I know what happened after going more than six hours with a ruptured appendix or duodenal ulcer. If I got in before then most of them got well; after that most of them died. Before six hours I was treating the rupture; after six hours I was treating the peritonitis.

Suppose before you get the case, somebody has done something else for it. That brings up the first aid situation. I wish they did not do anything. They think that if they put in something very nicely colored, that is enough. Those antisep-

tics are very colorful, but to use them is not good *traumatic* surgery—it is *chromatic* surgery.

### CLEANSING

There are only two ways of treating a wound; only two ways to clean a wound—mechanical sterilization and chemical sterilization. Mechanical is by debridement and chemical is by drugs. If a patient is seen by us within the first six hours, we give one type of treatment; if after six hours, another type of treatment. We are not going to do anything to an already infected wound that we do to a non-infected wound. If we go into infected territory and do what we would like to do to a non-infected wound, we will spread the infection.

First of all, within the first six hours, we cleanse. With what? Soap and water. What next? More soap and water. What next? More soap and water. Rub it gently, but don't scrub. If it is a ragged wound and the edges are brown we debride them. What does debridement mean? To remove the debris? No. It is a French word and it means unbridling. It means to sparingly excise all the damaged tissue. Organisms cannot live on anything healthy, they die. We excise until three criteria are attained: (a) it bleeds; (b) it looks healthy; (c) if it is muscle, it contracts. In some cases it may mean 1/32 of an inch, it may be half an inch, but we do it until those three criteria are fulfilled. Then we stop the hemorrhage.

### SUTURES

Shall we do primary suture? I am going to be very radical and say don't sew anything that requires debridement. Put in your sutures of some non-absorbable material, place a dressing over it, and don't tie those sutures until the end of the third day. That is a primo-secondary suture. At the end of the third day, take the dressing off, bring the sutures together and you will be surprised to find how nearly you have attained perfect coaptation.

I think an excellent dressing is sulfanilamide, 15 grains to the ounce, in mineral oil or sterile

vaseline as a wet dressing. Use a large dressing to immobilize the injury and keep it quiet. Hand cases should be well splinted because motion has a capacity to cause infection to spread. The kind of splint does not matter.

### INFECTED WOUNDS

I am a great believer in hot wet dressings in an infected wound. I like a saturated solution of mag. sulph., several layers of gauze, with the solution dripping through. Use an electric light to keep it hot. I use it until I get indications for incision and drainage. Don't cut except for one of these three if you would not metastasize your infection: (a) localized fluctuation; (b) localized tenderness; (c) localized induration. When you cut, cut until the wound is gaping; ordinarily that means going through the fascia. For drainage use the end of a rubber glove, or an ordinary pipe cleaner. Use gauze only in two places (a) to stop hemorrhage and (b) to keep wound edges apart. And if you have to use gauze, oil it with vaseline or mineral oil.

### FOLLOW THROUGH

The follow through is more important often than anything except the initial treatment. Function is the end in view. Let us start reasonable motion early. Don't put the hand into a hyperextended, hyperflexed position. Put it in a position of ease, ordinarily that is in a partially flexed position in any and every joint. To promote function have the individual try to make motions almost from the beginning. Get the bad side to imitate the good side. Physiotherapy is regarded as a sovereign method in helping to restore function. I am a great believer in physiotherapy if the person who is directing the treatment does the physiotherapy. Long wave, short wave, diathermy, all have their place, but my reliance mainly is on what I can get the patient himself to do.

### SUMMARY

Traumatic surgery is emergency surgery and the fundamental thing is "to do it now." The six hour period is the Golden Period. If we can take care of our wounds during that time we are very much less likely to get infections. After the six-hour period there is a different type of treatment because the situation is different. Let us debride our wounds; let us use the sulfa drug on the outside as well as internally; but do not regard

them as substitutes for the ordinary surgical asepsis of years back. In the infected cases the sulfa drugs are invaluable, but don't rely on the sulfa drugs to carry you through; the sulfa drugs won't do it without giving the wound ordinary cleansing; and don't forget that the sulfa drugs are specific for infections of the erysipelas type and other cellulitis. Do not sew up a debrided case, and above all do not sew it up in a compound fracture. In infections there are three indications for incision: local fluctuation, local tenderness and local induration. Never for brawny induration; never for adenitis.

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### THE TEN COMMANDMENTS OF TRAUMATIC SURGERY

- I. Thou shalt have no god of trauma other than the welfare of thy patient.
- II. Thou shalt not bow down to any graven image except Knowledge and Experience.
- III. Thou shalt not take in vain the name of those who diligently seek the welfare of thy patient.
- IV. Remember to give thy patient rest on the days following injury.
- V. Honour the parents of traumatic surgery who gave birth to and practiced this branch of general surgery.
- VI. Thou shalt not kill thy patient by neglect nor by the practice of alien doctrines.
- VII. Thou shalt not commit adultery by conniving clinic crimes designed to conceive such offspring as infection, deformity and disability.
- VIII. Thou shalt not steal the ideas of thy brother practitioners without due recognition.
- IX. Thou shalt not bear false witness against thy brother practitioners who probably did as you would have done.
- X. Thou shalt not covet thy fellow practitioner's skill, his equipment, his hospital nor anything else that is his, except his reputation, his knowledge and his experience.

## JOINT INJURIES

December 5, 1941

In the consideration of joint injuries the lesions are: contusion, sprain, synovitis, bursitis, wounds, foreign bodies, joint calculi, dislocations, fractures.

There is in any joint injury a certain routine incidence. I think it runs about like this—a sprain, a synovitis, a calcified bursa. In the majority of cases indirect rather than direct violence causes the joint difficulties. We often have difficulty in differentiating dislocations from fractures. Let me call your attention to a clinical rule which is an excellent one. In any recent joint injury associated with deformity and disability, suspect a fracture first and not a dislocation—with one exception—in the shoulder joint. In it we have over 50% of all the dislocations which occur in the body and here direct violence is the most common causative factor.

A *contusion-sprain* is the most common injury, with the wrist and ankle most often affected. Here the differential diagnosis between sprain, dislocation and fracture is sometimes very difficult. If it happened by indirect violence, watch your step. Let me give you another clinical rule—localized tenderness is just as important a symptom in traumatic surgery as it is in abdominal surgery. Localized tenderness around a joint ordinarily means fracture. In a joint fracture tenderness is local and focal; in a contusion-sprain, it is general and vocal.

In an *acute sprain*, if we can get the case in the first hour before swelling has occurred, try to get the joint into very hot water, preferably running water, massage it for a few minutes, then strap it, and strap it hard. Use elastoplast: it is ideal for joints. If it is an ankle, strap it up and make the ankle point toward the place where the pain is. You will find straps 2½ or 3 inches wide excellent. At the upper end, split them; first for a broader base, and second for better circulation. Exaggerate your position so that the foot turns toward the place of pain. Let your patient walk. Teach him to walk with the aid of a chair, with feet flat on the ground, taking small steps. He will gain confidence by having something to hang onto and you have gotten him away from the crutch habit, as well as having restored circulation. You leave on the straps four or five days, sometimes ten days. If you like, they can have physiotherapy. I have something I call the SOL treatment. S - soap, O - oil, and L - light.

I tell the patient to make up a solution of hot soap suds, take two wash cloths, and apply for ten minutes as hot as possible, then apply warm camphorated oil for ten minutes. This treatment is repeated twice daily.

What about plaster of paris in sprains? I say "No." My belief is that joint cases should be treated by mobilizing rather than by immobilizing. Do not make it necessary for the patient to get over the treatment as well as the injury.

The treatment of a wrist sprain is the same. Do not stop at the wrist joint, bring it up.

*Foreign bodies* in the knee joint are a tremendous problem. They should be located before any attempt is made to remove them. Remember that the vulnerability of any joint to infection is great.

*Bursitis* occurs primarily in the shoulder and at the knee joint. Let us consider a subdeltoid bursitis of the traumatic type, not the systemic type, although in my opinion the two are closely related.

In the *acute shoulder case* I use elastoplast strapping. Four straps. Again I split the ends. Start up high with one strap and go down to above the elbow. With the second, start at the scapula, bring it over onto the chest wall, and so on, so that there is an elastoplast shoulder case. In addition give injections of sodium cacodylate. Why this helps I do not know. Give enough sedatives to help the pain.

In *subacute shoulder cases*, physiotherapy sometimes is good—diathermy, short wave or long wave.

X-ray your cases. Not just the ordinary AP and lateral, but x-ray around the clock, otherwise you will miss some of the calcium deposits. If the strapping does not help, find the spot of localized tenderness. Keep the arm at the side and novocaine that area with one or two percent. Then with your needle try to find the calcium deposits. Put the novocaine in several places with the idea of trying to hit it.

The next thing is to wash it out. The two-way washout helps where the calcium deposit is fairly liquid.

Operate when the pain becomes unbearable. Operation is incision and drainage, and it is successful. Sometimes it is bilateral and the patient can have these without any manifestations. They

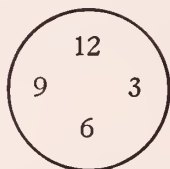


are sometimes induced by trauma and sometimes by a certain type of injury.

With subdeltoid bursitis one cannot lift a telephone or a book, or put on a coat.

Now the *knee*. A direct blow is ordinarily the cause. There are three lines of treatment. During the acute stage: rest, cold wet dressing; after 48 or 72 hours: aspiration with or without injection of some irritating medium like sodium morrhuate; and finally, if they fail to respond to that fairly conservative treatment: excision. When you excise do not get too close to the knee joint, because it is most vulnerable to infection.

*Synovitis of the knee* is very rarely due to a direct blow, it is usually indirect trauma. The best treatment is early aspiration. Water on the knee is not water, it is not a sero synovitis, it is a hemorrhagic synovitis. In aspirating the knee, I like to visualize the knee as the face of a clock:



Flex the knee slightly, put the patella to the outer side, using the under surface of the patella as a guide. On the right knee, introduce the needle at 9 o'clock and push it to 12. On the left, introduce the needle at 3 o'clock and push it to 12. Use a fairly good sized needle. Have someone compress the knee so that all the material in the bursa comes to the surface. One case of mine had bloody fluid for nine weeks. I think aspirating the knee is perfectly safe and I advise you to do it. If you do not wish to aspirate, the next best thing is massage, by an expert masseur. Remember there is no muscle in the body that atrophies quicker than the quadriceps. Teach your patient to lift the leg off the bed, make him use effort to activate the quadriceps to prevent atrophy and lessen disability. And start it right away because at the end of 48 hours you will be amazed at the amount of shrinkage. Make your patient put the good leg over the bad one and try to lift it with the bad leg.

Now how about injury to the *cartilage* and the *subpatellar fat pad*, and *hypertrophic synovitis*? (I call them the adenoids of the knee joint). The internal semilunar is most often the offending cartilage. I have never seen a cartilage injury due to direct violence. It is usually due to eversion and rotation, as in a skiing injury. One best

bet in making a diagnosis of cartilage injury is to inquire into how it happened.

Indirect violence, eversion or inversion of the leg may lead to one of three things: synovitis, or damage to the semilunar or the medial ligament. If you have a big swollen knee, is it synovitis alone, or is it this plus something else?

The vast majority of injuries involve the inner side of the knee, and if we compare ourselves to the four-footed animals we can see why—our upper extremities become our forelegs and the lower ones our hind legs.

In making a diagnosis look at both knees with the patient seated on the table, legs dangling over the edge. Look at the good knee first. Any crepitus? Don't forget the stethoscope in trying to pick up joint pathology. In the case of a cartilage it will be amazing what you can get through the stethoscope. Remember, locking is one of the rarest signs of a cartilage injury. If you find localized tenderness over the tip of the condyle, you have an injured ligament; if tenderness is brought out by eversion of the foot or by extension, you have a damaged semilunar. History of an eversion type of violence, pain, swelling, localized tenderness, are the three signs that will put it into the ligament or semilunar class. The rest are corroborative signs.

The treatment is the same as with synovitis. Aspirate or have it massaged and put in some form of splint. If it is locked, make your patient lie down flat on the table, swing his knee, many, many times. Put a thumb over the internal semilunar and tell him to kick out straight. Press your thumb after you have it relaxed. That sometimes does exceedingly well. The second method: again flex and again manipulate it many, many times; have an assistant hold the thigh; give it a quick pull down and then extend it. If that does not do it, put him face down on your table, hang the leg over the side of the table and tie a weight to it to give it traction. Sometimes it is necessary to give intravenous anesthetic and reduce. Then treat it as if it were not a locked case.

Suppose it recurs? Suppose the patient says he is all right going up stairs but has to hang on to a bannister going down. If he tells you that, it is in internal semilunar. I let them have one attack and operate. The results are good.

In acute cases, there are two types of operation. One is a large medial lateral incision, and the other is the small incision. In the case of acute

case we can make a reasonably small incision. If the case has gone on for a long time you plan your incision so that you can do an exploratory. I do them under spinal anesthesia. Don't put in a stitch. Heavy dressing is indicated. They are usually out of bed in five days and out of the house in ten days or two weeks.

## WOUNDS

December 5, 1941

Every wound that is not made with surgical intent is already infected, hence our problem is essentially the treatment of infected wounds. The treatment not only depends on the type of wound the source of wound, and the type of individual affected, but it is predominantly tied up with the time element. We have here what I called the "golden period." The first six hours are the essential period. If we delay beyond the six hour period we have not only the wound on the surface of the body, not only the initial trauma but we have the additional thing of infection.

We have three great foes in all trauma—shock, hemorrhage and infection; and there are the Four Horsemen in trauma—death, disability, deformity and despair. If we would control that quartet we must do it in time.

For our purposes we have three types of wounds: incised, lacerated, crushing.

### INCISED WOUNDS

The incised wound is just as great a source of infection as the lacerated wound. When they come to you they have most likely had first aid treatment. I don't care what they do so long as the tissue has not been damaged. If I had my way *I would have that wound covered with a sterile dressing and nothing else.* If the case comes to you in the first six hours the first thing to do is cleanse it with soap and water, plentifully, until the wound is as surgically clean as your hands would be for an operation. Then dry it. Stop the bleeding. If you wish, paint the edges with any antiseptic. I don't like to put antiseptic into a raw wound. Then drain. A rubber band makes an excellent drain in some cases; an ordinary pipe cleaner in others, particularly in wounds of the tortuous type. If you are sure of the source of the wound and sure that it has been adequately cleansed, I think it is safe to suture, but let us really play safe and not suture any accidental

wound. Put the sutures in and don't tie them until three days have elapsed.

Any kind of sterile dressing may be used for your incised wound. If you wish, use the sulfa compounds. The essential thing is to fix it so that the wound will be absolutely immobile, therefore, I say use a heavy dressing, and if it is a moving part, put a splint on it, in a comfortable position.

### LACERATED WOUNDS

Whether it is one wound or a series of wounds, within the six hour period, the same procedure—soap and water, dry, paint the edges, remove all frayed, devitalized damaged tissue by debridement with a knife or scissors. Skin, muscle, fascia are excised where devitalized. Debride until you have your three criteria: a) until it bleeds; b) until it has a normal color and looks clean; and c) if it is muscle, until it contracts. The next thing is hemostasis; then drying out the wound; then placing of sutures. Use non-absorbable suture, deeply, taking in all the tissues; do not tie until end of the third day. Use a heavy dressing and, if a mobile part, a splint.

### CRUSHING WOUNDS

These are the cases with great macerations, in which surgical judgment is infinitely important. What are the indications for taking off a limb? The rule is—and it is an infallible rule—to amputate for the following:

- (1) Extensive damage to the vascular supply
- (2) Extensive damage to the soft parts, muscles and tendons
- (3) Extensive damage to the bone
- (4) Extensive damage to the neural supply.

Are there any exceptions? Yes, in a working man, it is very much better to take off a finger than to have him go on with an osteomyelitis. Don't let us forget the old surgical axiom "once an osteo always an osteo." A limb that is going to be a mess as far as function is concerned is also an exception.

In an emergency we do a chop amputation rather than a shaped amputation. In the lower extremity I like an amputation through the leg rather than through the ankle joint.

### INFECTED WOUNDS

Let us call the period after six hours the infected state. Personally in these cases I prefer to do no surgery until there are certain definite indications. I try to focalize it by hot wet dress-

ings—I don't care what, just so they are wet and hot. I like several layers of gauze with a Dakin tube, a fenestrated tube, with the solution going through. After I have it focalized and have given sulfa drugs by mouth, I can do something if certain indications are present:

- (1) Definite *localized* fluctuation
- (2) *Localized* tenderness
- (3) *Localized* induration.

Do *not* operate for lymphadenitis and lymphangitis.

And when I cut I try to keep within the area of infection and keep out of the clean part, otherwise there may be a blood stream infection.

When to give tetanus antitoxin and when to give gas gangrene antiserum? In soil-contaminated wounds, in firearm wounds and in crushing wounds. I think it important to test your patients for wheals. It is safer to give it than not to give it. Remember also that occasionally in burn cases we get a case of tetanus.

### HEALING

Generally speaking, what wounds heal better? Those from the neck up—the face wound will heal well. On the scalp, if it is well shaved, it will ordinarily heal well. The reverse is the case with the shin and hands—they heal poorly. When the time comes for the wound to be given some aid in healing I like to give it exposure to sunlight or electric light. This gives me greater granulation surface. Ten minutes of light twice a day, gradually increasing to one-half hour twice daily using the sun or an unfrosted bulb twelve inches away. Of course, you don't need artificial sunlight in Hawaii.

For the wound that is foul smelling, sunlight is very good. My favorite dressing that is particularly valuable at night is equal parts of camphorated oil and mineral oil. For something more active try scarlet red, a dram to an ounce, either paste or liquid. Also to aid in granulation and reduce odor, if sunlight does not do it, solution of potassium permanganate 1:500 will.

For the patient who just is not doing well, who won't eat, won't sleep, whose temperature is up a little, whose blood count is not what it should be and whose wound is sluggish, try repeated small transfusions. That is the best prescription for systemic infections. There are two excellent clinical indices of progress—if the patient can sleep and if he can eat. And don't forget

to look at his tongue, to find out if he is dehydrated. There is a lot of talk about sending things to the laboratory, but the tongue is an excellent indication.

### SUMMARY

#### Wounds

Every wound not made with surgical intent is infected.

*Golden Period* for treatment—first 6 hours post-trauma.

	Cleanse	Debride	Sulfa	Drain	Suture	Splint
Incised	{ Soap & water	—	—	— or +	+	—
Lacerated	{ Soap & water	++	+	+	—	+
Crushing	{ Soap & water	+++	++	++	—	++

#### Infected Wounds

*Early treatment:* hot wet dressings of mag. sulph., ac. bor., saline.

*Late treatment:* same, until localized, then incision, sulfonamide, drain, splint.

Do not incise for cellulitis, lymphangitis or lymphadenitis.

Give tetanus and gas gangrene anti-sera in

{ Soil contaminated  
{ firearm in muscled area } wounds.  
{ crushing

*Best drains:*

- (1) Rubber band, glove-finger or tubing.
- (2) Pipe cleaner.
- (3) Gauze (oiled) only to stop bleeding, or to keep edges apart.

Remove early, 1-3 days.

*Healing:* Scalp and face heal kindly.

Hand and shin heal poorly.

*Sutures:* Use non-absorbable interrupted sutures of silk, silkworm. Primo-secondary, or delayed suturing is the method of choice in any wound with signs of contusion; hence safest in auto accidents.

*Granulation:* To aid granulation use sunlight or electric light, or oil. camph. 1 part and mineral oil 3 parts.

*Odor:* To reduce odor, use sunlight or elec. light, or potass. permang. 1:500.

*Sulfa drugs:* For potential or actual infection, use sulfonamides on the wound, 15 grains to oz. of min. oil or vaseline, and also internally.

*Erysipelas:* streptococcus cellulitis: Sulfonamides are specific.

*Transfusions:* repeated small transfusions are best treatment for systemic infection.

From author's forthcoming book: "Clinical Traumatic Surgery", W. B. Saunders, publishers.



## BURNS

Sunday, December 7, 1941  
9:00 a.m.

Dr. Moorhead had barely started to lecture on the subject of burns when the call came for surgeons to go immediately to Tripler Hospital. He joined the twenty or thirty civilian physicians who started out immediately.

## RETROSPECT

December 11, 1941

Meeting of the Honolulu County Medical Society to review the experiences of the 7th and to present, with Dr. Moorhead as spokesman, uniform rules and regulations for the treatment of certain types of cases, adopted by the special committee.

A lot has happened since we met here last Sunday morning. How fortunate that the schedule of lectures had been re-arranged so that we had the lectures on the treatment of wounds before the 7th and were prepared when the necessity arose to put our knowledge into mass application.

Since then they have taken off my civilian clothes and put me in these. I am in the army now.

Never in all my experience—and I was 19 months abroad and was commanding officer at an evacuation hospital—not even in the Argonne, in the 8 months I served with the French, did I ever see so many seriously injured men admitted to a hospital in such a short period.

What happened at Tripler, with 400 major casualties coming in steadily from 7:50 AM to 1:50 PM, would have happened in any hospital; in the best hospitals of New York City or any other place, prepared or unprepared; there would be, inevitably, confusion. There was confusion. There was difficulty in getting supplies for a time. There was a shortage of supplies for a time. But let me say to you that I am proud of that outfit; I am proud to have been associated with it. When I say "that" outfit I mean the surgeons of your own group and the personnel connected with the hospital. I have had occasion to say in several places that to have been associated with you was one of the great privileges of my career.

## CONFUSION

Now if we had it to face again tomorrow, there are certain questions we should be asking

ourselves. How can we avoid the confusion? What were the things we should have done?

1. We should have patients better prepared before they come to the operating rooms, with fluids, plasma, or blood transfusions;

2. We should have teams of surgeons—one team for abdominal surgery, one for thoracic surgery, and so on;

3. We should have surgeons working with assistants who are used to working with them;

4. We should have a willingness, a mental elasticity, to change from civil surgery conditions of the leisurely type to the sudden emergency conditions of the military type.

## WAR SURGERY

War surgery is not civil surgery. Let us understand that as an essential thing. You cannot do surgery under these circumstances in the same way as you would under civil conditions. Your object is *to save life* (1) by preventing hemorrhage, (2) by allaying shock, and (3) by every possible effort to prevent infection. Plastics—no. Elaborate operations—no. Sutures—no! This is an emergency situation. This is no time and no place for the refined surgery of the ordinary operating days in our own hospitals.

Many of the things I will say will be controversial, but bear in mind that we are in an emergency. Let us decide here and now to proceed in only one way, and, without being egotistical, I can say to you that this way will work—it will save lives. Let us not get into controversies as to the relative merits of this drug, or that method, or this dressing; and let us not get off into schisms and dogmas, but proceed along one line.

Yesterday I looked over personally and dressed 104 of these cases in various wards and I saw only one case that had pus. Can you beat that in civilian life? Therefore, I tell you, I know from recent experience and I know from past experience that this works and I recommend it to you as the road to follow:

## CLEANSING

Many of these men come in to us in a dirty condition with mud and oil. Mind you how absurd it is to wash our hands for 15 minutes, and to put on a fine clean gown and clean gloves, unless we thoroughly cleanse the area and the wound itself. How do we clean it? With soap and water, more soap and water, and more soap and water, using a brush that is not stiff, or gauze, cleansing the interior of the wound last.

Dry the wound and the part surrounding and coat the latter with iodine. Then you are ready to proceed with your first act of debridement and to find your foreign body.

#### DEBRIDEMENT

We know that organisms can live only on dead or dying tissue. What is the best culture medium under heaven? Bouillon. And the best bouillon that ever could be is the autogenous bouillon that is made up of tissue, of macerated muscle, and blood, maintained at body temperature in a covered, dark place. We must beat the organisms to it by starving them out. We will cut off their food supply by robbing them of all bruised and devitalized tissue and giving them nothing on which to thrive. That is the basis of debridement.

Debridement comes from the French word, meaning "unbridling." It means excising with a knife or scissors. Excise until three things happen—the criteria of debridement—(1) excise until you get a normal color; (2) excise until it bleeds, and (3) excise until (if it is muscle) it contracts. These are the basic things that go to define adequate debridement. In some cases you may have to cut off 1/4 inch, in others 1/32, but do it so that the outside part is widest. As you get to the depth of your damage you have a V-shaped hole.

Now you are ready for the second act of debridement. There will be some tiny frayed edges around the wound that must be removed. The French call it *épluchage*—"plucking out the feather" edges.

#### SULFA DRUGS

We dry out our wound and fill it with sulfanilamide or sulfadiazine. When I say fill it, I mean *fill* it.

#### SUTURE

Do we suture? *We do not suture up any wound completely.* We put in our stitches—silk or gut, or cotton, interrupted. We do *not* tie them, we leave them there. If at the end of three days there is no evidence of infection, no redness, no discoloration, no crepitation, no local or general septic signs, we draw all these stitches together. That is primary-secondary suture, and it is a life-saver. If you would save lives, if you would prevent death, disability and disaster, do not forget primary-secondary suture in civil as well as military cases.

#### DRESSINGS

Let your dressings be massive. The inner layers should be of sterile gauze, the outer of ordinary cotton; and the latter do not need to be sterile. Resolve to make your dressing a splint. Wherever a joint is crossed by your wound or debridement, support it. Keep it in a comfortable position, in a position of physiological rest.

#### POSTOPERATIVE CARE

Give a sulfa drug, 1 Gm. every 4 hours for the first 4 days routinely. If they get a toxemia, cut down the drug. Dress them the next day, and don't put on dry gauze. Have it moistened in sterile mineral oil, or equal parts of mineral oil and vaseline, and be sure to have it oily for one or two layers next to the raw surface.

#### GAS GANGRENE

Suppose 24 hours have elapsed and the wound has a brownish or watery discharge; the tissues you debrided no longer look healthy and red, they look brick red; and when you get your nose down in the wound it smells of dead animals or garlic. Then feel the margins of the wound, and if they are brawny and hard, get a culture to the laboratory immediately. Without waiting for the laboratory report, open the wound wide, for you are on the way to a possible gas gangrene. Remember the local signs:

- (1) Discharge, watery and brown.
- (2) Brawny discoloration around the edge of the wound.
- (3) Smell.
- (4) Localized crepitation, although this may be a later sign.

Don't wait for your laboratory report. If these things are present, excise immediately and ruthlessly. Because the gas gangrene organism is a selective one, excise the whole muscle, making a liberal incision because if in the next twelve hours you have not cleared that spot, amputation is your only hope.

At the first sign, anti-gas serum should be used, and the first dose is three times the ordinary dose, just as in tetanus. After that give it every 4 hours or every 8 hours, as the indication may be.

Suppose it is an ordinary pus producer. With or without a laboratory determination as to whether it is a staphylococcus, streptococcus or other infection, use a wet dressing of iodine solution,

azochloramide, or a solution of sulfa drug, 15 grains to the ounce. If there seems to be any burning do not wait; put a pair of forceps in and open it up, *but do not cut*. The knife is an excellent means of producing metastasis, and you may give the patient a blood stream infection if you cut.

### AMPUTATION

We are still now in the emergency class. When do we amputate? What are the indications for amputation?

- (1) Damage to the main blood supply;
- (2) Damage to the main soft part coverage;
- (3) Damage to the main neural supply;
- (4) Damage to the main osteal structure.

Count out damage that is irreparable—that will not respond either to immediate or subsequent repair, damage in which we know if infection takes place it will kill the patient. Ordinarily the damage is a combined damage, not to the vascular, neural, or soft part supply alone, not to the osteal alone, but to two or three of them. If so, amputate. When? Now. And this amputation is a so-called guillotine, a chop amputation that severs everything at the same level and is left wide open. It is not sutured. This is not the time for plastics. It is a chop amputation and done straight through at the level of your combined fracture, or at the level of the greatest damage to the soft part coverage.

### BLOOD AND PLASMA

As an outcome of our round table deliberations, we have decided that as a means of combating shock or hemorrhage, whole blood is the method of choice. If whole blood is unavailable, then plasma is the next best. In burns, plasma is to be preferred. We also give saline, with or without 5% glucose.

### PAIN

Do not forget the pain these people have. Courage is not the rare thing with these boys, it is the ordinary thing; and when these boys have pain, do not give them  $\frac{1}{8}$  gr. of morphine, or  $\frac{1}{4}$  gr., give them  $\frac{1}{2}$  gr., and keep giving it to them according to their needs. When an individual is injured in battle, it hurts. Do not forget the psychic effect of lying in bed with your arm or leg gone and listening to an impending attack from above and thinking you may have to take it again.

Let me tell you that if you will follow out the scheme as outlined to you here, you will be re-

warded by the saving of life and limb, and by a very remarkable lessening of not only mortality but also morbidity.

### DISCUSSION.

DR. STRODE—Regarding chest wounds, in an emergency there is no time to look for foreign bodies. If they are obvious and easily removed, it should be done, otherwise they should be left. In closing the wound put in a tube leading into a bottle of water under the bed. The chest should be aspirated following return from surgery if there is evidence of hemothorax.

There were too many men operated on that day that were in shock. They should have been given blood, saline, and preliminary medication.

I have dressed several hundred of these wounded. We have not had much infection, but I am not as optimistic as Dr. Moorhead. I think in another day or two we are going to have plenty of infection.

I have seen many who have been treated incorrectly. Some were sewed through and through, some were packed with gauze. In a few days, I fear, we are going to have some very severe infections that could have been prevented.

I can only emphasize what Dr. Moorhead said about gas gangrene. The only sign we could detect was an odor and the brownish discharge. No evidence of gas or crepitation, but a characteristic odor which could not be missed.

DR. JUDD. One important thing is the anesthesia. Don't kill these fellows with the anesthesia. In my opinion, if you have no expert anesthetist, give ether by the drop method; it is the safest to give in an emergency. I am afraid of these spinal, intravenous and rectal anesthetics. If you have to use an untrained man or woman, get an open mask, or a newspaper and a piece of towel, and drop in the ether.

This is the third war I have been in. I was sick to see at Queen's Hospital little children and women with arms and legs off. It is a dirty way to fight a war. If we could only get back to the battlefield!

The sulfa drugs are a great blessing, but do not expect miracles of them. They aren't worth a damn if the wounds are not properly treated.

The little tags of tissue Dr. Moorhead spoke of are very important. They are just the things that the bugs want to eat.

Regarding guillotine amputation, I would suggest that you put a couple of silk-worm stitches over the artery, that make a little tension over it. We used to sew a little muscle over the femoral artery to support it. Have a tourniquet at the top end of the bed and teach the patient to use it. If that femoral artery breaks loose, he will die in a few minutes unless he uses it. I am always afraid of the secondary hemorrhage.



## BURNS

December 22, 1941

What is a burn? I have for a long time called it an *infected wound due to heat*. If we put burns in the infected class right from the start, it will get us away from the carron oil and smear treatment. You men doing first aid work must recognize the fact that a third degree burn or an extensive second degree burn demands hospital treatment and not first aid treatment.

### CAUSES OF BURNS

A burn is an infected wound due to heat; heat generated from a thermal, electrical, chemical, radiation or emanation source. The three commonest sources are flame, contacts and scalds produced either by liquids or hot metals.

Electric burns are not primarily due to electrical contact; mostly they occur from an arcing contact. Many people believe that electricity produces a particular type of burn. My experience is that it does not. If I had my choice I would take the electric burn because it is a cautery type of burn, the kind we use in therapy. Electric burns, while they are ordinarily third degree, are relatively painless, and are the most harmless from the standpoint of immediate symptomatology and eventual outcome. It is the clothing catching fire in an electric burn that causes the multiplicity of burns.

Burns among children are likely to be of very lethal character because children do not do well with certain burns. Women do very badly also. Not so much that they cannot stand the shock, but because of the type of clothing they wear.

### PATHOGENESIS

Burns can be divided into three stages: redness, inflammation; exudation; and healing, or cicatrix stage.

I do not know anything that is more characteristic from a pathological standpoint than the manifestation of burns. Nature resents an assault from any external source. She gets very angry, she swells up and gets red and causes pain; the surface is hot. After the anger subsides, being very feminine, she weeps and we have the stage of tears, exudation. After that the tears dry up and she carries the scar. That is just as true of typhus fever, pneumonia, grip or a cold in the head as it is of a burn. Nature reacts in those three ways wherever she is irritated or assaulted.

### MANAGEMENT

*First degree burns*—the minor degree, the superficial degree—are characterized by the or-

dinary signs of inflammation, p.h.s.—pain, heat, and swelling. In the first degree burn the shock element is out. Treatment is any kind of wet dressing. Bicarbonate of soda, 5%, is my favorite, if it is available. Mineral oil, if fresh, is good. These burns do not concern us much, but be careful about patients who may also have inhaled flame. Look out for bronchial symptoms.

*Second degree burns* are characterized by signs of first degree burns plus weeping and exudation of serum. If that serum becomes infected, as it will by surface organisms, we have pus. I have a rule never to bother a bleb until it interferes with my dressings. When the time comes to puncture it, do not puncture from the top, it should be punctured from its base. It must be done aseptically, after coating with iodine. Let the sound tissue level be your guide. Push it free from your base and not from the top.

Treatment: Second degree burn is an infected wound due to heat, with a break in the skin. Wash it off, with gauze sponges, soap and water, followed by plain water. Put on an aseptic dressing. Vaseline gauze is good; mineral oil is good, if you are sure it is clean. And remember to force fluids. If patient is in pain, give something to stop the pain,  $\frac{1}{4}$  or  $\frac{1}{2}$  grain of morphine, if necessary. One of the best ways of preventing subsequent shock is by giving a larger dose of morphine.

When we come to the next class, the *third degree burn*, we are getting into the lacerated, extensive wound class, and we have now particularly an ulcerated surface to deal with. If it is a localized third degree burn, it is a hospital case. If it is a generalized third degree burn, it is doubly a hospital case. Put on a primary sterile dressing, and get these patients to the hospital. At the hospital the burned area is washed off with soap and water, and the patient should be under an anesthetic—a big dose of morphine, and an intravenous anesthetic. Debride. Take off the raw surfaces of the skin. Render that surface just as clean as if you were trying to render clean a lacerated wound deep in the tissues. Put on a dressing of a sulfa drug, in vaseline on gauze; or 15 grains to the ounce in mineral oil. Keep that surface covered unless there is some indication for changing it. Pain, odor, discharge, or elevated temperature are indications for changing the dressing within three days.

### SHOCK

This patient has shock, or will get shock. There are two kinds of shock. The first kind

is immediate, directly after the accident; secondary shock is within three to four days, or it may be delayed for ten or twelve days, principally in children. If you have plasma, give it by all means. Plasma should be given in divided doses, 300 to 500 cc. and repeat. Saline, glucose, are all right, but plasma is the thing. Do not forget to treat pain, too.

A lot of work has been done in regard to the cause of shock in burns, and several different theories have been advanced. What the actual basic cause of the shock in burns may be, does not concern me; it is the fluid loss which occupies my attention. The shock which occurs between the 10th and 14th day is said to be due to the absorption of toxic material from the burned area. Various estimates have been made as to the ratio of burn area to the surface of the body that will result in a fatal burn. I have known burns to be fatal when they involved very small parts of the body, and I have known some cases to survive when large areas were involved. I doubt very much if anyone can estimate it in terms of inches. It is not so much a matter of inches as it is a matter of the intrinsic shock with which it is associated.

#### COMPLICATIONS

For first and second degree burns on the face, start your patient chewing gum; it will help prevent contractures. Prevention of contractures is very important. In any burn, anticipate contracture and force patients to make motion. Force them to angulate. Don't forget to give fluids by mouth as well as by any available method that is possible. Do not forget the advantages of immersing extensive burns in a tub containing a solution of bicarbonate of soda. Tub treatment is also good for taking off dressings; for soaking them off. Dressings should be patted gently until soaked off.

Other complications are of the G-I type: nausea, vomiting, bloody bowel movements. Along about the second week, ulcer of the duodenum or jejunum sometimes occurs. Kidneys sometimes become affected. Painful, adherent scars and definite contractures are later serious complications.

A localized third degree burn is a very clear indication for early excision and immediate grafting with pinch, sliding, or Thiersch grafts. When it comes to the stage of giving treatment for the contractures, we have various treatments, but we

do not attempt to do the plastic work in the period of activity. In our organization we have a code:

1st to 4th day - primary period.

4th to 8th day - infected period.

9th to 12th day - period for elective operation.

In the first period, everything is red hot—no elective surgery. In the second period—hands off. The third period is for surgery.

#### FIRST AID

There are dozens of things that are used for burns, but with simple and perfectly ordinary treatment, the first and second degree burns will respond well if we do not infect it. The third degree burns are potentially major casualties and should be given hospital treatment. They should be regarded as exudative, lacerated wounds. The most necessary thing for those cases is debridement and sterile dressing. Much has been done in regard to shock treatment in burns and shortly we may be able to avail ourselves of some of the laboratories' findings.

#### TANNIC ACID

Personally I have always objected to an occluding dressing on any exuding surface. Tannic acid on first and second degree burns I think is excellent. In third degree burns I do not like it. My selective treatment for first and second degree burns is bicarbonate of soda, and for the third degree I prefer the sulfa drugs. Besides tannic acid in the first and second degree burns there are the various dyes,—gentian violet, methylene blue, mercurochrome. I do not care much what is used so long as it makes a non-occlusive and aseptic dressing.

#### SUMMARY

Let me leave this with you—a burn is an infected wound due to heat, and if we would prevent the effects of burns and shock, let us realize that third degree burns demand that same type of debridement we found so useful that Sunday morning. Let us also realize that these third degree burns are hospital cases and that they should be accorded the same type of operating room treatment as any other form of traumatic surgery. And do not forget to stop pain and make sure your patient has an abundance of fluids. And when the time comes to combat shock, I should say that almost specific treatment is to use plasma in preference to any other form of blood, either whole blood or blood derivative.

## TENDONS AND NERVES

### Tendons

In any trauma or injury to tendons let us remember what we have from an anatomical standpoint. A tendon is the lower end of a muscle. Its characteristics are (a) great holding power; (b) ability to withstand trauma and infection; (c) capability of a very considerable degree of re-education. In all the tendon injuries we meet in civil and military life, those to the tendons of the hand and wrist are the most serious. There are no less than 28 tendons crossing the wrist joint.

In making an attempt at tendon repair, do not do it by the clock. The operation is formidable and time-consuming. When you are operating in the neighborhood of the wrist joint do not hesitate to have anatomical diagrams before you and if you are operating on the bones of the wrist have a skeleton there.

First, let us take *tenosynovitis*. This is due to violence often repeated, rather than one single trauma. Pain, swelling, tenderness and a very peculiar crepitus are the signs. Do not forget to use your stethoscope, it can bring out a crepitation many times.

This may lead to formation of a *ganglion* on the dorsum of the wrist. This is due to multiple or repeated trauma and only in rare cases to single trauma. It may be a painful process. It may disappear spontaneously, but it may also recur after it has once been removed. It may be single or multiple and it may contain so-called "rice bodies." This does not, however, indicate a tuberculous process.

Treatment: Rest, elevation. Place a pad of gauze over the ganglion with straps. Arrange the straps spirally so they do not act as a tourniquet. If this is not effective, try the time-honored method of smashing it. Use a good heavy book. It is a good idea to daub it with iodine, so you do not miss it. As soon as it goes, put your thumb on it and do not let up on the pressure until you can put a felt pad on it. If this does not do it, aspirate with a fine needle, using novocaine to anesthetize the area. If this method is not effective, inject a sclerosing drug, one of the morrhuates. Iodine is good. If none of these help, use excision. Be sure to make an incision that will be perfectly adequate and do not make your incision straight, make it curved. Do it aseptically. Be careful of the tendon sheath. Re-

move the ganglion as completely as possible and if you are in doubt as to whether it is single or multiple, mark the tendon so you can get the contents completely expressed.

*Lacerated tendon.* Regard this as a general rule: If the tendon sheath becomes necrotic, the action of that tendon is very badly compromised. In an infection of the hand with involvement of the tendon sheath, bear in mind that the function of the finger, or of several fingers, is very likely to be permanently compromised. The size of the wound is no index to the extent of the damage. Remember you have 28 tendons in the wrist, arranged in several layers.

Treatment: Before you anesthetize, stop the bleeding, put on a sterile dressing and make a test of what the finger can do. Do not forget to look for an indwelling foreign body. Get the history. Were there small pieces of glass, or large splinters? Test the patient for four things: (a) flexion of the individual joints; (b) extension; (c) abduction of the individual joints; (d) sensation.

This is no office case, it is a hospital case if there ever was one. Remember you are operating on a human hand. Of all the surgery that is done badly, surgery of the hand is the worst.

If you do a primary suture, remember you do it only if it is within the first six hours. We know that if we do not take care of our cases within the first six hours, infection beats us to it. Remember, we go to the operating room. We place a pad of gauze over the wound and cleanse around the wound with soap and water. After the surroundings are clean we go into the wound and all over it, using gauze or a sponge. Do not scrub with a rough brush. Dry, paint edges with iodine and proceed to debride. How much? Not in terms of inches but in terms of damaged tissue, until you get to the foreign body or to the depth of the wound. Again the criteria are: (a) tissue looks normal; (b) it bleeds; (c) if it is muscular tissue, it contracts. If it is a two-way wound, debride one side, then the other, and clean it out with a piece of gauze—a through and through debridement. Stop hemorrhage. Put sulfanilamide in the wound. Do a partial closure, put in your sutures and let them go until the third day. If the wound is wide do not contract the tendons until you have tied a small piece of black silk on them so they do not get away from you. If it slides up in the tendon sheath try using a pair of forceps. If that fails, make an incision higher



up. Use silk, relatively fine, or cotton sutures. Try to make your sutures come end to end, but if your end to end approximation is not satisfactory with the limb out straight, flex it. Tendons stand suturing very well. Rest the wound by a heavy dressing and use a splint that will give it support. Some people remove the splint in 24 to 36 hours. I do not. I take it down at the end of five days. Do not try motion until the fifth, sixth or seventh day. The patient can wiggle his finger, but actual motion should be reserved until later.

Other tendons that may be involved are *biceps tendons*, *patella tendons*, and the *Achilles tendon*. The tendo Achilles has the best prognosis of any tendon.

As for the bigger tendons, if they are separated it is quite a task getting them together again. An "L" shaped incision or a "Z" incision will give almost any length you want. Use silk also in these larger tendons. If a tendon is gone altogether, take the adjacent tendon, split it, and splice it to the other.

### Nerves

What we have said regarding tendon repair also to a great extent applies to nerves.

The differential diagnosis between neuritis, arthritis, myositis is made on the basis of the history. Was it direct, indirect or muscular violence? Was pain generalized or localized? Is the tenderness focal and local, or is it general and vocal? This is most important to know. If it is local and focal, and you get it along the nerves, you have a *neuritis*.

We get *neuromata* after infections, amputations, etc. They are difficult and painful, and hard to control. After you have run the gamut of treatment, you may come to believe that the Criche operation is the best. It has a notable place in the axilla and in the femur. A segment of the outer coat of the artery is stripped off. That often stops pain immediately.

In *neuritis* the symptoms are pain, swelling, local tenderness, disturbance of sensation. In neural manifestations there is a very definite pattern and it is definitely geographical. One of the earliest manifestations is atrophy. There is definite wasting when there is sciatic involvement.

Treatment. *Without wounds* the treatment is rest, posture, splintage. Certain anodyne drugs are helpful. Physiotherapy sometimes is very

helpful. In treating neuritis *with* wounds you must decide if there is radial involvement. In trauma of the upper extremity never fail to try for two things: (a) radial pulse and (b) vitality of the radial or musculo spiral nerve. Find out beforehand if the wrist can be elevated. In trauma of the lower extremity find out (a) is there a *dorsalis pedis*, and (b) can the ankle be flexed and extended?

You must know these before treatment is instituted. If it is within the Golden Period, cleanse, debride and suture. If for any reason you think the nerve should not be sutured now, tag it with black silk so you can find it later. Suture within the six hour period, with silk, and do it delicately. You cannot be as rough with this as you can with a tendon. Above all, have no tension. If around the elbow, you may have to flex it greatly even to the point of interfering with circulation, then let up a little bit.

Suppose it has not been sutured and becomes infected? Do no plastic work on these. Wait six weeks *plus*. Make manipulation on the wrist, and if you get no cellulitis it is reasonably safe to go in. If you have given tetanus antitoxin and you suspect tetanus, give a second dose 24 hours before operation. If you have any doubt about the state of the previously infected wound, use sulfanilamide in the wound.

Period of regeneration of nerves is as follows:

Musculospiral (radial)	5-14 months
Ulnar	5-16 months
Medial	8-15 months
Sciatic	12-22 months
Peroneal	10-16 months
Tibial	11-17 months

One of the first signs of regeneration is called Tinnell's sign—tingling at the site distant from the lesion. Trophic signs come back at about the same time. Motor signs come back last. Do not despair if you do not get results in nine to twelve months, even later. It is a slow process.

Can a motor nerve be transplanted? Can I take a sensory nerve and transplant it to a sensory nerve and expect it to take? It has been done in the laboratory and sometimes in the operating room, but not with such success that I would recommend it. In such cases I advise a tendon transplant. Can one take the proximal end of a nerve and put it into the muscle which it supplies? This can be done and sometimes it will work,

but it has not happened often enough to give it as a precept to follow. In nerve loss, the best procedure is not anastomosis, not nerve transfer, but a tendon transfer.

I again would emphasize that in all these open wounds, cleansing is the most important thing; then debridement; then primo-secondary suture. Nothing is more important than a clean field.

## SPINE INJURIES

Today we will talk about the closed cavity which we call the spinal canal. Let us get the anatomic basis of this structure and see how it is built.

The spinal column, as I emphasized yesterday, is simply a series of joints, and these joints are clothed and covered with certain structures which are familiar to us. A fracture of the spine without intrinsic cord damage is just as much a curable condition as fracture of the neck of the femur; in many cases it is much more curable.

There is a zone of incidence in connection with fracture of the spine. Uncomplicated *dislocations* of the spine occur only in the *cervical* region, particularly in the upper zone. Most of our dislocations in the cervical zone come below the third or fourth cervical junction.

In the *lower* spine we are concerned chiefly with *abnormalities*: 1) a failure to close (*spina bifida occulta*), 2) lumbarization of the 1st sacral vertebra, 3) sacralization of the fifth lumbar vertebra, 4) a short transverse process, and 5) a narrow transverse process. People with abnormalities of the spine, when subjected to trauma, are not likely to have any more after-effects than if they were built along normal lines.

When we get to the *dorsal* level, we get into the great zone of *fractures*. This region may be subjected to backward, forward, sideways, or rotating violence. In the vast majority of these cases injury results from forward bending violence. Bones break where they are weakest, where they are thinnest, where their structure is most vulnerable. They break where the curve changes. Bones break in terms of the same physical laws that govern the breaking of a piece of wood.

What is there in the make-up of a vertebra

that makes it so vulnerable? These bones are honey-comb in structure, and the blood supply is not good. This is a structural defect which makes for a lack of that solidarity that we find in a long bone. Fractures of the spine do not occur as a result of direct violence. There are two clinical kinds: with, and without, cord damage. We can break the box without damaging the thing within it. The extent of the fracture is no guide to the extent of cord damage. Often with a minor fracture there is much cord damage, sometimes there is no fracture and much cord damage. I suppose that there is such a thing as concussion of the spinal cord, but I cannot rationalize it. Most of us believe that it is a misnomer, it should be called contusion of the spine.

The order of incidence of fractures of the spine are: 1) body of the vertebra, 2) transverse process, and 3) spinous process. Be careful when you read your x-ray that a gas bubble has not interposed itself and thrown a shadow. Injury to the transverse processes is not of great importance. They heal by fibrous union. They should not be subjected to surgery, since they will do well enough by themselves.

*Fracture of the body of the vertebra.* History of bending violence, as in automobile accidents or in diving. It is not necessary to have extreme violence to produce a fracture of the body of the vertebra. Forward twisting; backward twisting; anything that is capable of producing a jack-knifing effect; and if the violence is extreme, the vertebra may collapse and give a compression fracture.

*Fractures of the transverse process* are avulsion fractures. In the diagnosis of this, or any of the fractures, the history is a great aid. Examination: Swelling, ecchymosis, localized tenderness, spasm of muscle, perhaps crepitation, perhaps false motion. Do not be content with fore and aft X-rays—do a lateral. In some cases do not be content with just two: go "around the clock." You will be amazed to see the evidence of fracture you can pick up that way.

The diagnosis has been made, and the patient has been brought into the hospital. Now in a suspected fracture of the spine, as in any other fracture, try to put the patient into a position that will do the least harm in transport. When the patient picked up in the street says "My legs are asleep," turn him face down. If his arm is asleep and he has difficulty turning his head, leave him in the position in which you

found him. Do not attempt to correct the deformity—forward, backward or lateral—that this patient's head may be in, until you get him into the hospital. The first thing to do in the hospital is not to be too active in attempting to make a diagnosis. Do not put your patient on a stretcher and attempt to bring him to the X-ray room. Run your hand along his back, and if you find a sore spot, that is enough. Suspect and expect a compression fracture of the vertebra. What do you do? Try to convert his position into exact opposite of how you found it. Arch the back—over-correct it, I don't much care how, with bolster, pillow, or Gatch bed (reversed so that feet are at the head end). Keep him there until you demonstrate that your alignment is all it should be. At the end of ten days put him in plaster. The plaster should go below the dorsal level, up high. When putting on plaster, encircle the last two segments of the spinal column; make it a very complete encirclement. Pad so that there will be no pressure over the spinous processes. He wears the plaster eight to ten or twelve weeks, and he may get up and walk around. Then put on a Taylor brace. Before the plaster comes off he can do certain exercises, such as deep breathing, or carrying a weight on his head. This is done to keep the muscles active and to keep circulation active. The prognosis is good in well-reduced cases. In unreduced cases there will be a certain lack of conformation. In some cases there will be a spondylolisthesis. In general the prognosis of uncomplicated fracture of the spine is excellent. If there is a great deal of knuckling, use traction. This is kept up until you can substitute plaster of Paris.

*Intraspinal injuries.* These are dangerous, and may be two kinds. In one there is immediate, total loss of motion, sensation and visceral control at and below the level of the lesion. The other kind shows partial loss of these, with gradual recession. The second kind we have great hope for; the first one, not so much. In fracture of the spine with cord involvement, I have rarely seen a laminectomy do any good; it should be used only as a very last resort. If the patient was not benefitted by closed correction, he will almost never be benefitted by laminectomy. The best single indication of level of lesion is the zone of hyperesthesia.

With involvement of the bowels and bladder, the patient should be put on an air bed or water bed, to help prevent decubitus. We also try to

avoid this by particular nursing care and by keeping pressure off the heels, malleoli, and sacral regions. We sponge them off with alcohol. Remember the doughnut on which to support the heel. Remember the possibility of preventing decubitus rather than having to cure it after it does arrive. In the care of the bladder, I prefer spontaneous overflow, or if necessary frequent aseptic catheterizations or indwelling catheter, with tidal drainage if you have the apparatus and some one to watch it.

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## SKULL INJURIES

December 29, 1941

Skull injuries are of two classes, like those of the spine, without intracerebral damage, or with intracerebral damage. I said yesterday that the extent of the external damage to the spine was no indication of the seriousness of the damage done; I say the same thing even more emphatically in regard to skull injuries. In any closed cavity, the external evidence of injury is no accurate measure of what has gone on within. In a linear fracture of the skull, the individual may be unconscious, temperature rising, there is every evidence of intracerebral concussion, yet your external examination may reveal almost no external evidence.

There is a zone of incidence in skull fractures, as in spine fractures. In the skull the frontoparietal region is most vulnerable subject to injury. We divide this zone into two sections, the vault and the base. Eighty per cent of fractures of the skull lead from the vault into the base, and eight or ten per cent lead from the base into the vault, so that when you get a fracture of the skull and your X-ray begins to show that you lose your line after it gets down below the parietal base, don't think that you have the end of it. The frontoparietal-temporal combination is the most common for the vault; for the base the middle fossa is the most common zone of incidence.

There may be a simple crack (linear); there may be the comminuted type. There may be the depressed type, and if this type is carried through to operation we find that the depression is more marked on the inner table than on the outer table.

Method of examination: We can do a good deal in examination if we go over the head the



same way we go over the abdomen. First of all, it helps a great deal to shave the entire scalp. It will bare the surface so that you will not be looking through a fog. We look for any irregularities; for hematoma; for scalp ecchymosis. This is one of the best signs of fracture. Ecchymosis is pathognomonic of fracture when it is 1) late in onset; 2) distant from scene of trauma, and 3) geometric in outline.

*Palpation:* Make it a bilateral palpation, all over the head. Any irregularity? Does it "give" when you press? *Percussion.* Use the stethoscope. Do you get a tin-pot, broken type of sound? (This is in the unconscious patient, of course.) Any hemorrhage in the ear? Any dried blood in the nose? Any curious looking whitish material coming out of the ear? If it is 48 hours later, any evidence of discoloration of the conjunctivae? If this is limited to conjunctivae, probably it is a basal fracture. Hemorrhage from ear is nearly always pathognomonic of fracture.

A patient comes in and says he was knocked out; saw stars; was sick to his stomach; does not know how long he was out. He went home dizzy, lay down and fell asleep. He slept half an hour, woke up and began to feel drowsy. After that he noticed he could not use his hand and after that he cannot remember much. That is a classical manifestation of a blow on the head with slow hemorrhage.

What is *concussion*? Concussion is supposed to be due to a shake-up of the cerebral contents. Beyond that people differ; some say it is from many minute hemorrhages. How do we know we have it, and what are we going to do about it? With concussion there is an immediate onset of unconsciousness, complete or incomplete, usually associated with nausea or vomiting or both. If you get this history, watch that patient for at least three days. If you do not, the patient may become comatose in 48 hours and die before you can help him. In cases that give evidence of head injury or are said to have fallen, an attitude of caution is important. If we get concussion signs, let that put us on our guard.

*Compression.* What are the compression signs from? Blood, bone, or foreign bodies. Localized compression motor signs and sensory signs. Eye signs: pupillary changes; dilation of the pupil; ordinarily the pupil dilates on the side of the lesion. Temperature change: rising. Pulse change: slowing. Respiratory change: slowing. Blood pressure change: rising. How much on guard ought we

to be about these things? Get a neurologist to take a look; get an eye man to take a look. Now comes the question: Has he a fracture or has he not? Shall we X-ray? I do not much care whether you X-ray or not. You can tell from other signs. X-ray cannot hurt the patient, if you do not have to lift him; but I do not think it is necessary in most cases.

Incidentally, do not try to make a differential diagnosis between hematoma and a depressed fracture. It cannot be done, and it will not help anyway. If in doubt, incise the hematoma. Do you see a fissure? If you can rub the fissure clear of blood and it stays relatively clear for a short period, it is truly a hematoma. If blood wells up immediately, that is a fracture. That sign is not always positive, but it is good.

I will have no part of anybody who uses routine treatment for cases of suspected or actual fracture of the skull. In the old days at Bellevue we used to give these cases mag. sulph. by rectum, to decompress them. Then along came Cushing with his decompression operation—hole in the roof to drain the basement of the house. A head case, of all cases, should be *individualized and watched* with the greatest kind of care. It should be watched for progression of symptoms due to the only thing that can harm him: an effusion of blood. If it gives him generalized signs you cannot do anything for him; if localized signs, you can.

Indications for operation in fractures of the skull are quite limited. Decompressed fractures of the skull need nothing done immediately. Do not operate while the patient is in shock. Bleeding cases need immediate attention. With foreign bodies (bullet wounds, etc.) do not go in immediately unless there is some indication for it. The only one of the three that demands immediate operation is the bleeding case.

*Operative procedure:* Make a small hole to take a look. Is there a clot right under it? Is the dura a nice pearly color or is it dark? Is there pulsation? If the dura is lusterless and so on, enlarge the hole; if it is still lusterless, open the dura. Does a clot of blood come out? If you have an accessible vessel that you can catch with a clamp, cautery or stitch, get it. Suppose there are fragments of bone, are you going after them? Be very careful. Put a soft rubber catheter down and with a syringe wash it out very gently. Sew up the dura, sew up the scalp, and put a

drain to the surface. A pipe cleaner drain is good, or a piece of rubber tube; but do not stick it into the brain. Let it stay for 24 to 48 hours but no longer.

*Subdural hematoma* is another operative case. Usually manifestations are late. Diagnosis is made from headache, dizziness, reflex changes, eye signs, minute hyperesthesias. Be suspicious, be careful about these cases. Have adequate consultation. Go in on one side, and if you do not find anything, go in on the other side.

*Spinal tap?* They say, yes, do a spinal tap, it will be diagnostic and therapeutic. I say if you cannot make a diagnosis without spinal tap, you had better go back to school. Spinal tap is therapeutic, it is used to reduce pressure if rest and other means do not do it. Never do it with the patient in an upright position. Have the patient's head low. It is best to do it in three test tubes, so you can rack them and see what your proportion is. How much do you take off? It depends on the pressure behind. How often? I like to be very conservative about doing it at all.

All right, you say, you do not go into their head or their spinal canal, what are you going to do? You treat them for shock, and just sit by and watch. Why? Because I am old enough to judge the results. I say "hands off" in the majority of these head cases, and no rushing in for operative purposes on the skull itself or by spinal tap. Rest, sedation (bromides and chloral). Do not forget to give bromides by rectum. Keep a proper fluid balance and give them rest. I am not radical in regard to the skull situation. It is not rational to recommend a perfectly definite routine for every case of head injury.

The sequelae may be headache, dizziness, insomnia, tinnitus, psychoses, fits. Some people recommend intraspinal injection of air on the theory that the air dissects the adhesions apart. I do not like it. I would be very careful about it, especially in compensation cases. Do not produce a piece of surgical pathology to cure a piece of traumatic pathology. You may make the patient worse.

Epilepsy does occur in these cases but it is not common. From war statistics we know that epilepsy is relatively rare following trauma. We know the incidence of epilepsy and also the infrequency of it as a traumatic sequel.

Can traumatic insanity be mixed up with a

"four plus"? It can. Can a trauma activate something that may have been going on before? It can. How often it may occur is hard to say, but traumatic insanity in the absence of syphilis is very rare.

What about plastics for the repair of defects? Do people nowadays put in plates of metal? No; a piece of tibia, or rib cartilage is preferred. There are two operations, both very satisfactory.

We have the greatest incidence of fatalities in skull and spine cases within the first 48 hours. If your skull or spine case is going to die of that injury per se he usually dies in 48 hours.

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### A SURGEON'S PRAYER IN WARTIME

God of Battle, grant that the wounded may swiftly arrive at their hospital haven, so that the safeguards of modern surgery may surround them, to the end that their pain is assuaged and their broken bodies are mended.

Grant me as a surgeon, gentle skill and intelligent foresight to bar the path to such sordid enemies as shock, hemorrhage and infection.

Give me plentifully the blood of their non-combatant fellow man, so that their vital fluid may be replaced and thus make all the donor people realize that they, too, have given their life's blood in a noble cause.

Give me the instruments of my calling so that my work may be swift and accurate; but provide me with resourceful ingenuity so that I may do without bounteous supplies.

Strengthen my hand, endow me with valiant energy to go on through day and night; and keep my heart and brain attuned to duty and great opportunity.

Let me never forget that a life or a limb is in my keeping and do not let my judgment falter.

Enable me to give renewed courage and hope to the living and comfort to the dying.

Let me never forget that in the battles to be won, I too must play my part, to the glory of a great calling and as a follower of the Great Physician. Amen.

Xmas Night, 1941

John J. Moorhead

Col., M.C.

# Observations on the Treatment of War Wounds

MADE AT TRIPLER GENERAL HOSPITAL FORT SHAFTER, HONOLULU

J. E. STRODE, M.D.

Honolulu

Experience is a great teacher, and the catastrophe that occurred on this island of Oahu on December 7 was no exception. I have been asked to discuss, for the benefit of those who did not have the opportunity of treating the wounds of this date, the things that impressed me as important to remember when suddenly confronted, unexpectedly or otherwise, with a large number of war wounded.

On the morning of December 7th, I was listening to Dr. Moorhead's lecture on burns, which began with the prophetic quotation, "Therefore be ye also ready, for in such an hour as ye think not, the son of man cometh". Bombs were dropping at that very moment over Pearl Harbor, and the injuries about which he was talking were occurring in quantities.

## PREPAREDNESS

A well-organized smoothly-running team is as important in efficiently caring for war wounds as it is on the football field in scoring touchdowns. As Dr. Judd has aptly put it, the time for confusion is before the shooting starts and not after.

Hospitals properly prepared for casualties should have, in addition to a well rounded-out staff, supplies of material readily available—many times the amount needed for normal times. It is surprising how rapidly supplies disappear, for the wounds are frequently multiple and frequently of great size.

## CLASSIFICATION OF CASES

Patients should be admitted to the hospital at one portal of entry if at all possible, so that their injuries can be quickly examined and their disposition made without unnecessary delay. There is no word in the English language to accurately describe the duties of the individual assigned to this job but the French call him the "*triage*" officer. The term, so far as I can learn, means the one who does the sorting. He should be a surgeon of the widest possible experience and with the soundest possible surgical judgment. No assignment on the surgical staff should be made with greater care.

All injured patients on entering the hospital fall into one of five categories:

- (1) Those needing treatment for shock.
- (2) Those in need of minor surgical assistance.
- (3) Those needing major surgery immediately.
- (4) Those needing surgery later or not at all.
- (5) Those beyond surgical assistance.

As can be readily appreciated, this is a flexible classification, since the individual being treated for shock, for example, may soon fall into one of the other categories. The *triage* officer should quickly but accurately survey the injured individual, write on his forehead in mercurochrome the number—1, 2, 3, 4 or 5—to designate into which of the above described categories he falls, and an assistant should attach a card to the patient's wrist on which is written the patient's name, preoperative medication or orders and recommendations as to his further treatment. If the patient goes to surgery, the opposite side of the card may be used to describe the operative procedure and postoperative orders. It is appreciated that this method may not be the best one but at least it has the advantage of simplicity.

It must not be forgotten that many of these individuals have multiple injuries and the one that is of greatest magnitude and most apparent may by no means be as important as one that is difficult to discover. For example, a large flesh wound of the buttocks may so arrest one's attention that a small penetrating wound of the abdomen or chest may be entirely overlooked. The lesson to be learned is apparent: *Have all individuals prepared so that the triage officer can inspect the entire body without difficulty and without delay.* This necessitates a staff of individuals trained for this purpose.

## HANDLING OF PATIENTS

When possible, it is best not to remove the patient from the stretcher on which he is placed when first picked up until he is finally deposited on the bed on which he is to remain. It has been found that many major operations can be carried out with the patient on a stretcher, the handles being supported by wooden "horses" at each end. During treatment for shock the patient should be left on the stretcher. A convenient height for "horses" is 32 inches, but for shock treatment



the foot end of the stretcher should be raised 6 or 8 inches higher. Many of these back-saving devices should be scattered about the hospital corridors and shock wards and around the operating rooms.

#### MANAGEMENT OF SHOCK

It is extremely important that individuals in shock be given appropriate treatment for this condition by the use of heat, morphine, oxygen, and intravenous infusions of saline, plasma or blood before they are subjected to surgery. If any large number of injured are to be cared for, it is important that a special ward be designated for this purpose and that its staff be especially competent to administer such treatment. It is apparent that adequate amounts of apparatus, such as infusion and transfusion sets, arm boards, tourniquets, stands, sets for cutting down on veins in addition to ample amounts of saline, saline and glucose, plasma and whole blood, be on hand for this department to function. Teams versed in an acceptable method of treating burns may well carry on with shock treatment, since their methods of therapy have so much in common.

#### PREPARATION FOR SURGERY

It is important to treat shock before the patient reaches the operating table in order to prevent unnecessary delay in the operating room. It is also equally important to have the patient prepared for surgery in advance whenever this is feasible. Wounds should have been gently cleansed with soap and warm running water, unnecessary clothing should have been removed and necessary areas shaved. The desirability of apparatus to supply running water with receptacles connected by hose to the drain pipes so that no time is lost in changing basins of soiled water for fresh water is readily apparent. All preparatory measures should have been completed before the patient reaches the operating table to prevent the loss of valuable time by the surgical team.

#### ANESTHESIA

Ether anesthesia, by the drop method, lends itself well to this type of surgery. It has the advantage of safety and, in addition, it may, when necessity demands, be given by those with little training.

#### FUNDAMENTAL PRECEPTS

Dr. Moorhead recently gave us an excellent course on traumatic surgery and all who heard and heeded his lectures are fully aware of the principles governing the treatment of the war

injured. A brief reiteration of the fundamental principles covering the treatment of wounds as laid down by this eminent teacher cannot be too often repeated.

- (1) *No person in shock should be subjected to surgery except for control of hemorrhage or some other dire emergency.*
- (2) *All accidental wounds are infected and should be treated by:*
  - (a) *Thorough cleansing with soap and water, soap and water and more soap and water.*
  - (b) *Thorough debridement, with removal of all devitalized tissue until there is: Normal appearance of tissue. Bleeding. Contraction (in the case of muscle).*
  - (c) *The cuture wound should be covered by sulfanilamide powder, or alternatively by sulfathiazole powder.*
  - (d) *No wound should be closed. Stitches may be placed, to be tied at the end of the 3rd day if no infection is present; or the wound may be left without sutures.*

The very few infections (less than 1%) that occurred in the large number of wounds treated convinced me of the effectiveness of this procedure.

#### CHEST INJURIES

In chest injuries a few fundamental principles should be remembered.

- (1) Defects in the chest wall should be immediately sealed to prevent serious interference with the cardio-respiratory mechanism. Packs of moist sterile gauze are usually most readily available, though a large square of rubber tissue dam placed over the opening is better since air, blood and exudates are forced out of the pleural cavity on expiration and prevented from entering on inspiration. If there is serious hemorrhage it usually comes from a severed intercostal vessel, or, less frequently, from the internal mammary artery. These bleeding points should be ligated immediately. Hemorrhage from the lung usually ceases spontaneously. Hemorrhage from the large vessels in the mediastinum does not lend itself well to control, and usually proves fatal before or shortly after the patient reaches the hospital.

- (2) Rapid debridement of the wound with removal of easily accessible foreign bodies and sucking out of blood from the pleural cavity should be done if the patient's condition justifies it. It may be necessary, in order to save the patient's life, to do this subsequently even though it invites infection. When possible, the wound in the chest wall should be sutured tight after application of an adequate amount of powdered sulfanilamide to the wound and interior of the pleural cavity.
- (3) On return to the ward, two immediate complications should be expected and frequent examinations made to detect their onset:
  - (a) Hemothorax — treated by aspiration and replacement by an equal amount of air.
  - (b) Tension pneumothorax—treated by a water-sealed catheter introduced anteriorly in the 2nd or 3rd interspace in order to be away from the blood which usually complicates such injuries. This probably should be done routinely in all chest injuries before they leave surgery.
- (4) Infection resulting in empyema or lung abscess is a later complication and can be dealt with in a more leisurely manner, should it occur.
- (5) Mediastinal emphysema causing cyanosis and respiratory difficulty may be occasionally encountered. An incision into the superior mediastinum above the sternum may relieve the condition, though it is frequently associated with injury to other vital structures making the prognosis grave.

Injuries to the chest are the only ones where a closed system of anesthesia may be desirable in order to expand the lung before closing the chest wall. In the absence of pressure anesthesia, subsequent aspiration of the chest is desirable to aid in expanding the lung.

A bulletin briefly covering the salient features of the emergency treatment of chest injuries, along with a description of the simpler apparatus found useful, is now being compiled by a committee especially interested in the subject. This information will be distributed to each physician in the Territory.

## ABDOMINAL INJURIES

Abdominal or suspected abdominal injuries should be looked for immediately if the patient is not in shock, or as soon as the individual responds to shock treatment. If reasonable doubt exists as to the presence of an abdominal injury it is better, if the patient's condition justifies, to explore than to wait until the findings make the diagnosis certain. Be on the lookout for visceral injuries even though the point of entrance of the missile is remote. Never conclude because the portal of entry is small that the extent of abdominal injury is small. Have a systematic method of rapidly and gently exploring the abdominal cavity. It is probably best to start with the stomach, rapidly surveying the region of the liver, spleen and duodenum; then drop down, expose the jejunum, and follow the entire small gut to its termination; then in turn the large gut, not forgetting as one passes along, the ureters, kidneys, vessels in the mesentery, and urinary bladder. It is better to close multiple bowel perforations, if the blood supply is adequate, than to do a resection. Silk on round intestinal needles is the suture of choice. Eight or ten grams of sulfanilamide scattered about in the abdomen should be a routine procedure. There is rarely any indication for drainage in such cases. Even though the damage to the abdominal viscera is extensive, a conscientious and determined effort should be made to repair the injuries for it is surprising to see recovery take place, not infrequently, in an apparently hopeless case. This method of procedure is desirable and the only one that will prevent overlooking injured organs, but all desirable methods have to be modified to fit the individual patient.

## AMPUTATIONS

Amputations make up a large percentage of the emergency operations in the present war injuries. In selected cases, where the patient is not in shock, where there is a single injury and the patient is received early under good operative surroundings, one probably is justified in doing an elective type of amputation: that is, at the site of election, with flap and primary suture. However, the vast majority of such injuries are received under adverse circumstances, in which case a guillotine type of amputation seems advisable. All structures are cut across at the same level. Subsequently an attempt is made to bring the soft parts over the bone by adhesive traction. This failing, re-amputation must be done, at a later date and under more favorable conditions.

### FRACTURES

Fractures, usually compound and frequently associated with embedded foreign bodies, make up a substantial percentage of the injuries. These should be debrided in the usual manner, following which, if the fragments are in good alignment, a plaster cast may be applied. If this is not appropriate, traction may be used. The method advocated by Orr, of closing the fracture up in plaster, has never appealed to me, probably because of lack of experience with this method. Plaster in the form of sugar tongs, or with plaster bridges over the region of the injury, facilitate dressing the wound. Spinal anesthesia, when the lower extremity is involved and the patient is in good condition, has many features to recommend its use.

Following thorough debridement of all wounds and coating of their interior with sulfanilamide or sulfathiazole, patients should have for the first 72 hours 15 grains of sulfathiazole every four hours by mouth or, if this is not tolerated, the same dose of sodium sulfathiazole intravenously.

### GAS GANGRENE

Gas gangrene is a complication that, for practical purposes, does not occur if the wound has been properly debrided. If it does occur, wide excision of the wound should be done with the liberal use of sulfanilamide locally and orally. Some x-ray specialists are enthusiastic over the results attributed to deep x-ray therapy. I know of no large series of cases proven beyond a question of doubt that have been treated solely by x-ray

therapy. It would seem that the method, though hopeful, is still in the experimental stage.

### BURNS

Burns were not encountered in the injured that came under my observation. They comprised a very large group in certain localities and the subject merits consideration by someone who can speak on the treatment with authority. A committee has been appointed to undertake special consideration of this problem.

### SEGREGATION OF CASES

When the number of patients and the number and training of the hospital staff justifies it, segregation of the patients adds to efficiency in their care. As an example, in the Queen's Hospital the following divisions would seem advisable:

- (1) Neuro-surgical injuries
- (2) Chest injuries
- (3) Abdominal injuries
- (4) Fractures
- (5) Amputations
- (6) Burns

### CONCLUSION

Many of the suggestions here made are not original. Some of them have been contributed by Dr. Judd from his previous war experience. All of them, I believe, will be found useful if we are again called upon to treat a considerable number of injured. In conclusion, the admonition of "Be ye also ready" applies to every Territorial inhabitant, but doubly so to those caring for the war wounded.

881 Young St.





# U. S. Naval Hospital, Pearl Harbor, T. H.\*

REPORT OF ACTIVITIES, DECEMBER 7, 1941

It was a quiet, peaceful Sunday morning, a few minutes before 8 o'clock when two corpsmen took their place at the foot of the flagpole on the lawn in front of the hospital. One carefully cradled Old Glory and the hospital flag in his arms while the other firmly grasped the halyards. A few medical officers reporting early loitered around the desk of the Officer of the Day. No one gave heed to the insistent droning of motors overhead—it was the usual morning experience. Sudden terrific explosions nearby shattered the Sabbath stillness. "Colors," called the Chief, and the flag struck the peak and unfurled in the gentle morning breeze. "Carry on" was ordered amidst the spattering of the machine gun bullets as officers living on the reservation dodged and hurried to the hospital. The Mate of the Day reached for the telephone, ordering all medical personnel ashore to report for duty immediately. And so began the memorable day, December 7th, 1941, for the 35 doctors, 29 nurses, and 256 corpsmen on active duty at the United States Naval Hospital, Pearl Harbor, T. H.

There was no confusion as each man and woman proceeded to his assigned post of duty, according to plans of some months' preparation. Supplies were broken out and distributed, ambulances were dispatched, and the grim business of caring for the wounded began.

Casualties arrived in a heavy stream and for some two hours they were received at the rate of several per minute. The immediate handling of such a flood of patients was quite a problem, but it was solved by distributing them to all wards as they were received. It was recognized that a receiving ward would have created a hopeless bottleneck. This distribution of patients was directed by the Commanding Officer, Captain Reynolds Hayden, and the Executive Officer, Captain Frank Ryan.

The badly wounded, those needing immediate surgical attention, were sorted out by the admitting officer and sent directly to the surgical amphitheater where four operating teams worked steadily without rest for days. The chief surgical nurse and assisting hospital corpsmen deserve special commendation for their untiring efforts.

\* Approved by Public Relations Officer, 14th Naval District Intelligence Office.

Obvious candidates for orthopedic surgery were directed to a special ward in the hospital, while less seriously wounded, with or without obvious fractures, were distributed to the nearest vacant bed in any of several wards.

One of the striking aspects of these casualties was the high percentage of first and second degree "flash" burns from nearby high explosive blasts. A large majority of these patients had been overboard and were covered with fuel oil. Casualties were so numerous that no attempt could be made to remove the oil or debride the wounds until the first or second day after admission. It was therefore necessary at first to use some type of tanning process over the oil; results however were quite good. The more severe burn casualties were segregated into specially designated wards where the maximum amount of proper supplies and personnel were concentrated.

Blast injuries of the lung as they became apparent were collected in one ward for more efficient treatment. As immediate measures, 1500 units of tetanus antitoxin were given to every patient unless it had previously been done at a battle dressing station; morphine in solution was also available and prescribed generously. Sulfanilamide powder was more than "frosted" into all open wounds and sterile dressings applied, while the patient of necessity was bedded for further disposition. Blankets, hot water bottles, oxygen, intravenous fluids and plasma were on hand in sufficient quantities to care for the more urgent cases. As might be expected, all patients were suffering from shock of varying degrees. Most deaths in the hospital occurred shortly after or within 24 hours of admission and were due to shock.

The care of patients after their first emergency treatment required 24 hours a day for about 10 days after the raid. Doctors, nurses and hospital corpsmen were divided into watches for this purpose. While the main operative suites were blacked out at night, work in the wards during this time was quite difficult, because total blackout was imperative. At night, therefore, the only light available for ward treatment was the faint blue light given by flashlights equipped with blue glass. This naturally seriously slowed up work, especially intravenous medication.

As the days wore on additional surgical dressings were supplied by the Honolulu Chapter of the American Red Cross and quantities of "wet" plasma were furnished by the Honolulu Blood and Plasma Bank operating under the auspices of the Honolulu Chamber of Commerce. Grateful acknowledgement of these valuable contributions has been made by the Commanding Officer.

The tremendous pressure of work in caring for the living under air raid conditions can only be experienced, not described. It has prevented preparation of a more elaborate or detailed report than the following.

### BURNS

Tannic acid, jelly and spray, with and without silver nitrate or gentian violet, was used; and experience does not warrant the recent disapprobation these valuable remedies have received. Debridement was carried out to the extent of the number of hands and amount of time available. Morphine generously, heat of course, plasma and other fluids in quantity, with control by the laboratory in the most severe cases, was the order of the day.

Sulfadiazine in triethanolamine solution, so widely heralded locally, was not available and was not used in a single case. A great opportunity for comparative study was missed, but the future may offer it again.

Statistics cannot be given; aid and comfort to the enemy must be avoided; but the results of treatment under the circumstances as we found them were remarkably good. Individualized ideal treatment for a limited number of burn casualties is the goal of our endeavor; but when faced within a few hours with a greater number of burn cases than one would see in a lifetime of practice, that is a different matter. Attention should be focused on prevention, and already-learned lessons should be relearned, namely:

- 1) clothing, even light clothing, will protect the individual against a majority of these first and second degree "flash" burns, and
- 2) Escharotic agents should not be used on the face and the hands. On these areas any mild antiseptic ointment is preferable (the British use a 1% gentian violet in Merthiolate jelly at battle dressing stations).

### WOUNDS

Sulfonamide therapy, both local and general, is revolutionizing the treatment of wounds. Much is being written elsewhere on the subject but

experience at the Naval Hospital demonstrated that the "Golden Period" of six hours can be ignored. Cases too numerous to mention proved this point. It is enough to mention one. This man had extensive, lacerated, shell wounds of the lower third of the hamstring muscles of both thighs. These were generously filled with sulfanilamide powder and dressed. By some odd chance he was not sent to the surgical amphitheater for almost 72 hours. At this point the wound was thoroughly debrided and the severed muscles sutured. Healing was by first intention.

Summarizing, it is worthy of note that wound infection occurred in only a few cases. Treatment in the main was sulfanilamide powder in the wound, and other sulfonamides, thiamine chloride and cevitamic acid by mouth. No cases developed tetanus or gas gangrene.

### ORTHOPEDIC SURGERY

All types of fractures, with and without complicating shell wounds, were treated with satisfactory results. More than half of the fractures were compound. Orr's plaster cast technique was used throughout for final dressing, and of the many cases so treated, only one had a temperature of over 99F during the hospital stay.

The officers in charge of the orthopedic ward deserve and earned the commendation given them by the surgeon<sup>1</sup> sent here by the Surgeon General on a tour of inspection.

### GENERAL AND GENITO-URINARY SURGERY

Although patients in these classifications were comparatively few, treatment accorded them was in keeping with the best traditions of modern surgery including sulfonamide therapy.

### BLAST INJURIES OF THE LUNGS

A number of cases were recognized on admission as having some respiratory injury. Others did not develop symptoms until later in the day. Accordingly 19 of these cases that survived were segregated in one ward for appropriate therapy. At first it was thought that they were suffering from the irritation of the pulmonary mucous membrane by the inhaled powder or oil smoke, with possibly some psychic trauma. Later, with more time for study of the cases, it was apparent that the condition was what is described by the British as "blast injury of the lungs." In varying degrees of severity and differing combinations, these men presented the symptoms of: shock, respiratory dif-

<sup>1</sup> The surgeon referred to was Dr. I. S. Ravdin of Philadelphia.—Ed.

ficulty, mainly inspiratory; cyanosis; cough; pain in the chest, more often lateral than central; and restlessness. The restlessness was marked and out of all proportion to the apparent severity of injury. The sputum was frothy and often blood-stained. Signs were either absent or consisted of hyperresonance with coarse and sibilant rales bilaterally. Secondary infection with the signs and symptoms of bronchial pneumonia developed in four cases. X-ray films of the chest in the uncomplicated cases revealed a dense mottling throughout both lung fields, resembling a patchy bronchial pneumonia. All of these men had been in the vicinity of high explosive blasts but there was no external evidence of injury. The main pathological lesion is described as pulmonary hemorrhage, massive or multiple, with rupture of the capillary and alveolar walls. There may be associated subarachnoid hemorrhages. These lesions explain the symptoms. Treatment was supportive and symptomatic, namely, strict bed

rest, oxygen by tent or Boothby-Lovelace mask, which was certainly lifesaving in every serious case; heat; fluids and morphine for shock (in retrospect, plasma would have helped) and morphine and codeine for pain, cough, or restlessness. The barbituates did not seem to be of much value. 16 cases recovered completely, but 3 remained with roentgenographic evidence of failure of resolution, and 2 have definitely diminished pulmonary function. This clinical entity and picture should be recognized by all medical and other personnel at battle or first-aid stations, to permit proper disposition of these cases to the nearest hospital. The early institution of rest and other necessary measures is of prime importance.

The Staff of the Naval Hospital takes pride in the fact that this very large stream of casualties was adequately cared for without outside assistance except for a number of trained nurses from Honolulu who volunteered their services. Their assistance was very valuable and greatly appreciated.



# Surgical Treatment of Cranio-Cerebral War Wounds

RALPH B. CLOWARD, M. L.

Honolulu,

Among the most serious wounds seen in war casualties are the penetrating wounds of the head. The majority of these wounds, although not immediately fatal, will result in complications which go on to a fatal termination if the wounds are not properly treated from the beginning. It is the purpose of this communication to outline the accepted neurosurgical methods of treatment of these wounds, which were used in our recent experiences with war casualties in Hawaii. These methods are the result of an accumulation of knowledge taken from the writings of Dr. Harvey Cushing and his associates<sup>1</sup> in the first World War, and from the numerous articles published by European neurosurgeons in France,<sup>2,3</sup> Germany<sup>4</sup> and England<sup>3,6</sup> since 1938.

The wounds usually encountered are compound depressed fractures of the skull produced by sharp, irregular fragments of metal (Fig. 1). The nature of the wound produced depends upon the size and position of the metal fragment when it makes contact with the head. Some of the scalp wounds are so small they may be missed on casual examination. Beneath these small scalp wounds, which may appear to be nothing more than a scratch, one may find by x-ray examination extensive fractures of the skull and a large thin flat metallic object in the brain. The larger wounds in the

scalp are jagged, irregular defects with multiple radiating lacerations and considerable destruction to tissue.

Injuries to the skull by these missiles are usually circumscribed holes with no linear fracture line radiating from the point of entry. The hole in the outer table of the skull is almost always small, corresponding to the size and shape of the missile. The hole in the inner table is as a rule many times larger than the missile. Numerous shattered fragments of the inner table of the skull are carried deep into the brain by the foreign body, lacerating the dura mater, cortical vessels and brain substance over a much wider area than one would suspect from the size of the foreign body.

Success in the treatment of this type of wound depends upon: first, the preliminary treatment given the patient at the time of his injury; second, the time of the operation; and third, the nature of the operative procedure itself.

The preliminary treatment is extremely important. All hair should be clipped from the head. This is essential for careful inspection of the scalp, since the smaller wounds may not be found through a thick head of hair. The edges of the lacerated wound are cleansed with soap and water, and bleeding from the larger vessels stopped with local pressure or a piece of rubber tubing about the head. Temporary dressings are then applied after the wound has been filled with one of the sulfonamide drugs. Morphine is contraindicated unless the patient has extensive painful wounds elsewhere; it should not be used routinely.

On admission to the hospital, the patients are first examined neurologically to determine, if possible, the extent of the injury to the brain. If the patient shows signs of shock, this is treated with intravenous saline, blood plasma or whole blood. Tetanus antitoxin or a "booster" injection of tetanus toxoid is administered and x-rays of the skull are taken, stereoscopic views whenever possible. It must be emphasized in taking x-rays of the skull that sufficient voltage be used or the time of exposure prolonged in order to obtain a dark film. Small depressed fragments of bone and often the metallic foreign body itself may be entirely missed in an x-ray that is under-exposed.

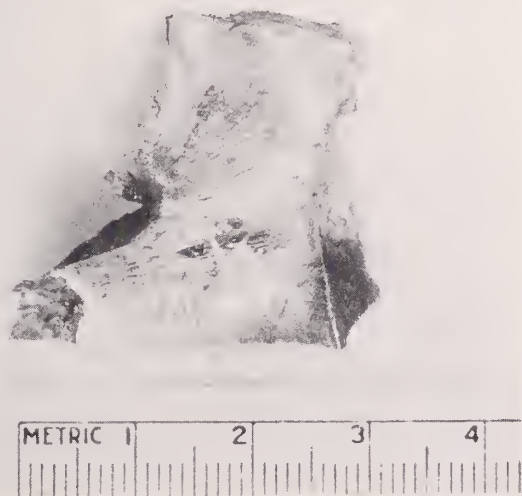


Fig. 1. An example of the type of metallic foreign bodies removed from the brain of war casualties.

Operation for this type of injury should not be delayed any longer than necessary. The optimum time for operation is within the first six hours after the injury. However, if of necessity the procedure must be delayed 24 to 36 hours it should be treated as a fresh wound and closed without drains. Wounds over 48 hours old, according to the European surgeons,<sup>7</sup> must be treated as infected wounds and left open.

The choice of anesthetic depends upon the patient's condition at the time of the operation. The majority of our cases were conscious and cooperative so that a local anesthetic of 2% novocaine was adequate. In the restless uncooperative cases, rectal avertin anesthesia supplemented with intravenous sodium pentothal can be used.

In the treatment of scalp wounds a wide area circumscribing the wound is painted with iodine and the area anesthetized by a circular local block anesthesia. The wounds can then be scrubbed and cleansed without pain to the patient. Large quantities of sterile water and green soap and a mild antiseptic are used. All jagged irregular edges of skin are cut away, using if possible a fusiform incision around the wound. Large skin defects up to 4 cm. in diameter can frequently be closed tightly by adequately undermining the adjacent scalp. If the edges of the wound cannot be approximated, a second superficial incision down to the periosteum can be made on either side of the wound 3 or 4 cm. from its edge. Initial wounds can then be closed, using two layers of black silk. The two raw crescent shaped areas produced by the laterally placed incisions rapidly granulate and epithelialize. Drains are never used in fresh wounds.

When the penetrating hole in the skull is small, one can obtain adequate exposure for treatment of the underlying structures by rongeur away the jagged edges of bone and enlarging the defect. Holes in the skull produced by larger missiles, however, require more exposure to adequately treat the extensive damage to the brain and dura mater. In these cases a small bone flap is elevated along one side of the hole in the skull. The exposure of a bone flap is important also in order to obtain a large piece of periosteum from the skull to be used in the repair of the dura mater.

The irregular holes in the dura mater are always larger than the scalp wound, because of tearing by the fractured fragments of the inner table of the skull in addition to the missile. A

careful debridement of the irregular edges of the dural defects is made to obtain clean edges. All defects in the dura mater must be closed tightly to prevent leakage of cerebrospinal fluid through the wound. The defect in the dura mater cannot be closed by pulling its edges together like the scalp because the dura has no elasticity. It is therefore necessary to patch the defect with tissue obtained either from the periosteum of the overlying skull or fascia lata from the thigh. The importance of this tight closure of the dura mater cannot be overemphasized, particularly when the wound passes through any of the paranasal sinuses. The development of secondary meningitis or of cerebrospinal fluid draining from the nose can thus be prevented.

The most important part of the operative procedure is a thorough debridement and cleansing of the missile tract through the brain. Along the missile tract one may find hair, dirt, grass and fragments of fractured bone. The damaged brain tissues and blood clots are removed with suction and all foreign material carefully picked out of the wound. The sinus tract is then gently irrigated with copious quantities of warm sterile saline solution. If the tract is deep a catheter may be attached to the irrigating syringe. The catheter may also be used to great advantage to palpate the depth of the wound for foreign bodies.

When an inspection of the tract in the brain shows it to be completely free of foreign material and all bleeding points have been controlled, the tract is filled with sulfanilamide powder before the wound is closed.<sup>8</sup> Sulfanilamide has been found to be non-irritating to the brain and to exhibit the same bacteriostatic effect there as in open wounds elsewhere.<sup>9</sup> The question arises as to whether the metallic foreign body should be removed from the brain or left in. Obviously if the missile is at all accessible it should be removed. The incidence of epileptic attacks in individuals with bullets in their brain is said to be as high as 50%. When the foreign body is small and has penetrated the brain to a great depth, however, it is best not to attempt to recover it.

The post-operative care of the uncomplicated case consists of absolute bed rest for a minimum of three weeks. Pain is readily controlled with aspirin. A routine course of sulfonamide therapy is given for a week or ten days, or longer, depending on the temperature reaction. All patients are placed on anticonvulsant drugs in adequate doses. Phenobarbital .065 Gm. (grains 1) three times a day is recommended. Patients are strongly ad-

vised to continue the drug for a period of at least one year following the injury.

In the cases treated within 48 hours after the bombing attack by the procedure outlined above, no post-operative complications were encountered. The following complications may arise from these injuries: persistent increased intracranial pressure from edema; secondary hemorrhage along the missile tract with hematoma formation; subarachnoid hemorrhage; and meningitis. In order that these complications may be recognized early, frequent neurological examinations including ophthalmoscopic studies must be performed. Lowering of the level of consciousness or development of a hemiplegia may indicate formation of an intracerebral hematoma and require reopening of the wound. Lumbar punctures are done only when the patient shows signs of meningitis or persistent subarachnoid hemorrhage indicated by rise in temperature, rigidity of the neck and slow pulse.

Patients that are not operated upon within the first 48 hours should be treated as infected cases.<sup>7</sup> The scalp, bone and dura mater are debrided as described above, the missile tract cleaned out and all foreign material removed. The entire wound is then filled with sulfanilamide powder from the bottom of the missile tract in the brain to the skin, and the tract in the brain packed loosely with vaseline gauze or gauze strips surrounded by rubber tissue drains. This type of packing is used to prevent the gauze and the sulfanilamide powder from becoming adherent to the brain tissue which may result in hemorrhages when it is removed. All head wounds are dressed

with a large dressing. A large pad of cotton is bandaged over the sterile dressings to give protection to the tender scalp in the clean wounds and to absorb pus and cerebrospinal fluid in the infected ones.

The principles of treatment described above can best be exemplified by a head injury case with complications.

#### CASE REPORT

U. O., Japanese female, age 5 years, a war casualty, was admitted to the Children's Hospital, Honolulu, five weeks after her injury. She had been treated in a rural hospital where x-rays of her head, taken at the time of her injury, were thought to be negative for skull fracture (Fig. 2). The scalp wounds had been sutured without drains. She was given an adequate course of sulfonamide therapy, but continued to run a fever and developed a very stiff neck. The meningitis failed to respond to the sulfonamide drugs and the scalp wound broke open and drained pus. The x-rays of the skull were then repeated, this time using twice the exposure of the initial film. The darker film thus obtained revealed the skull fracture with numerous foreign bodies in the left frontal lobe of the brain (Fig. 3).

On admission to the Children's Hospital, the child was found conscious and alert. There were no positive neurological findings except a moderate blurring of the optic discs. The scalp wound of the right forehead at the hair line was oozing pus. The patient was operated upon under ether anesthesia and an abscess about 4 cm. in diameter



Fig. 2. Underexposed X-Ray of skull which fails to show extent of fracture.



Fig. 3. Second X Ray of skull showing intra-cerebral foreign bodies of bone and metal.



was found in the right frontal lobe containing considerable hair, bone and metallic fragments, and pus. The abscess cavity was cleaned out, irrigated with saline solution and filled with sulfanilamide powder and packed open. Four days later the entire abscess wall with a considerable amount of edematous brain tissue of the frontal lobe had herniated through the defect in the skull, forming a large cerebral fungus on the outside of the head. This was removed and in doing so the anterior horn of the ventricle was opened and copious amounts of cerebrospinal fluid drained from the wound. The child has shown some improvement since the last operation. With the constant drainage of cerebrospinal fluid from the ventricle her stiff neck has disappeared and the temperature is gradually subsiding. She is still in the hospital and probably will be for many weeks.

#### COMMENT

This case illustrates the necessity of good x-ray pictures and early radical treatment of the penetrating wounds of the head to prevent the development of the serious complications described in this case.

#### CONCLUSIONS

The treatment of penetrating war wounds to the head as here outlined has now been used in a sufficient number of cases to prove its value. By improving the surgical technique in the first World War, Dr. Harvey Cushing was able to reduce the mortality of this type of wound from 60 per cent to 28 per cent.<sup>1</sup> With the addition

of the sulfonamide drugs neurosurgeons of the second World War have lowered the mortality rate still farther. If we in Hawaii should again be subjected to attack, the penetrating wounds of the head, if treated in this manner need not be considered as serious or fatal wounds.

Young Hotel Bldg.

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# Gas Gangrene and Tetanus

Their prevention and management in war wounds.

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It is of more than passing interest that notes were made on the occurrence and management of gas gangrene and on the occurrence—or rather non-occurrence — of tetanus among the casualties of December 7th. I had the opportunity, through the courtesy of the Army physicians in charge, to observe those cases seen at the Tripler General Hospital at Fort Shafter, Honolulu.

*There were only 11 proved cases of gas bacillus infection*, though the number and type of casualties treated would have led us to expect not less than 4 or 5 times this number. It seems likely that thorough debridement of wounds and dressing without primary suture largely account for this surprisingly low incidence; perhaps the generous use of sulfanilamide, both topically and orally, also played a part.

*All 11 cases of gas gangrene occurred in cases where primary suture of the wound was performed*, and this was done in only a small proportion of the cases treated. Certainly this points very clearly to the danger of such a procedure. Traumatic wounds should not be subjected to primary suture! Sulfanilamide cannot be relied upon to prevent gas gangrene infection unless the wound is left open.

So much confusion still exists as to the proper choice of a sulfonamide for use in wounds that I pass on herewith the judgment of Dr. Perrin H. Long on this subject. "Plain *sulfanilamide* crystals, the larger size, are best for direct application. In the abdomen 4 to 8 grams of sulfanilamide is more than adequate; it may be supplemented by the same drug orally in a dose of 4 Gm. stat and 2 Gm. every 4 hrs. for 24 hrs., then 1 Gm. every 4 hrs. thereafter, with a check of the white count on the 3rd day, or intravenously in a dose of 500 cc. of an 0.8% solution twice a day." In streptococcal or pneumococcal infections, *sulfadiazine* is to be preferred, 4.0 Gm. stat followed by 1 Gm. every 4 hrs. for 3 days; or sodium sulfadiazine, 0.1 Gm. per kilogram body weight in 5% solution in distilled water, daily by vein. *Sulfathiazole* should not be used for topical application to wounds because it is

poorly absorbed and forms a plaster-cast type of covering. Its use should be practically confined to gonococcus infections, for which it is specific; sulfadiazine has superseded it for almost every other organism.

The diagnosis of gas gangrene was made on the basis of the following criteria:

- (1) The typical "dead rat" or garlic-like odor (in all cases).
- (2) Increased temperature, pulse and rate of respirations; usually a rapid, pounding pulse out of proportion to the fever.
- (3) Crepitation beneath the skin adjacent to the wound (a late sign: don't wait for it).
- (4) X-ray evidence of gas in the tissues (also late).
- (5) Smears, and 2 generous biopsies, from the involved area, for laboratory examination.

Suspected cases were isolated in a "G-G" ward provided with a separate operating room, dressing sets and sterile supplies.

These cases were dressed twice daily, at which time generous amounts of sulfanilamide were dusted and even brushed into the wounds. The drug was also used orally, in combination with sulfathiazole. Transfusions of 500 cc. of whole blood were given almost daily, and were thought to be of definite benefit. X-ray therapy, though its status is still controversial, was employed in every case; the factors used were 140 Kvp. with a filter of  $\frac{1}{2}$  mm. copper and 1 mm. aluminum, and a 15 x 15 cm. port. Each case received 200r on diagnosis, followed by 100r twice a day to a total dose of 700r. Not one case received a therapeutic injection of gas gangrene antitoxin, largely because we have doubted the specificity of commercial antisera for our local gas-forming anaerobes. Studies are now under way at last to determine whether our gas-formers are *malihini* or *kamaainas*.\*

\* *malihini*—Hawaiian for newcomer, recent arrival.

*kamaaina*—Hawaiian for long-time resident, "child of the land."

Almost every casualty treated at Tripler Hospital had previously received prophylactic injections of tetanus toxoid, and was given a "booster" injection on or soon after the 7th, which may help account for the fact that *no cases of tetanus were observed* among them. Debridement, non-suture, and just good luck may, of course, also have played a part. Tetanus antitoxin was used in only a few cases which were not definitely known to have had the toxoid. The details as to the type of toxoid employed, the interval between

injections, the interval between the second injection and December 7th, and the number of cases treated, are not available as yet; they will no doubt be made public by the Medical Department of the United States Army in due course. It does not seem unduly enthusiastic, however, to crusade on the basis of this experience for mass tetanus toxoid inoculation of all civilians, adults as well as children,—particularly in view of our deplorably high annual incidence (5.7 per hundred thousand) of tetanus in Hawaii even in peace time.

1133 Punchbowl St.

## TETANUS IN HAWAII

*Morbidity & Mortality Statistics*  
Hawaii Territorial Board of Health

YEAR	OUTSIDE ISLANDS (not Oahu)		ISLAND OF OAHU (not Honolulu)		HONOLULU only		TOTAL FOR TERRITORY		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Mortality
1934-35	6	6	5	2	19	7	30	15	50%
1935-36	9	8	2	1	16	7	27	16	59%
1936-37	7	6	4	2	12	8	23	16	69%
1937-38	6	2	4	1	11	6	21	9	43%
1938-39	5	4	2	1	15	6	22	11	50%
1939-40	6	4	2	1	17	6	25	11	44%
1940-41	9	2	1	0	13	8	23	10	43%
Annual average	6.8	4.8	2.8	1.1	14.5	6.8	24.4	12.5	51.2%

### Mortality by Age Groups

AGE IN YEARS	NUMBER DEATHS	% TOTAL DEATHS
Under 1	3	3.4
1 to 9	34	38.6
10 to 19	16	18.1
20 and over	35	39.7
Total (7 years)	88	100.0

*Every month, for the last 7 years, two people in the Territory of Hawaii have developed tetanus, and one of them has died of it!*



# Eye Injuries in Warfare

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Honolulu

The outcome of ocular injuries depends upon the promptness and adequacy of first aid treatment. This is especially applicable to war injuries, where infections are more frequent and virulent than in injuries incurred in industrial accidents. It has been estimated that ocular injuries and disturbances of the visual apparatus comprised 8 per cent. of all war injuries in World War I.

In order to save eyes, combat infection, and retain useful vision, it is imperative that a well devised plan, founded on sound ophthalmological principles, be carried out within the shortest possible time. The following paragraphs are offered as a brief review to civilian practitioners and medical officers who are not accustomed to handle eye diseases but who in an emergency may be called upon to do so. The principles emphasized reflect current conceptions on the diagnosis and management of eye injuries and have been successfully employed during and since the raid on Oahu.

## ORBITAL FRACTURES

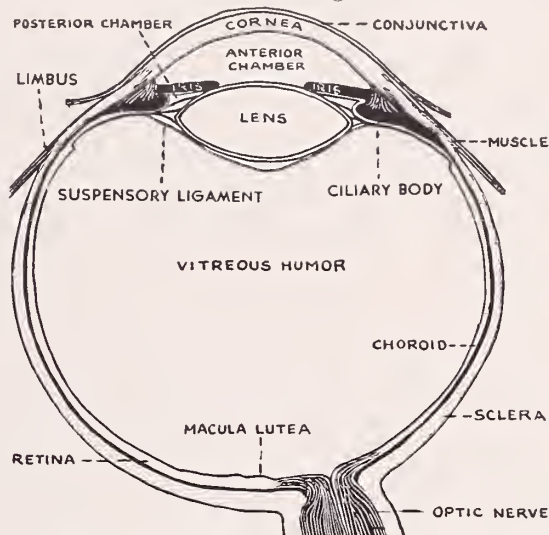
Fractures of the orbits may be depressed fractures of the floor or fractures of the anterior fossa involving the roof. Either of these may involve the apex of the orbit and endanger vision. Ecchymoses and subconjunctival hemorrhages appearing hours or days after the injury are pathognomonic of orbital fractures. Emphysema of the soft tissues indicates a fracture into one of the nasal accessory sinuses. Immediate forward protrusion of the eye is evidence of hemorrhage into the muscle cone; pulsating exophthalmos developing later suggests traumatic arterio-venous aneurism; paralysis of the extraocular muscles, immediate or delayed loss of vision are signs of injury at the orbital apex.

The treatment of fractures of the orbital floor consists of prompt reduction of the fragments by elevation of the malar bone through the antrum or through an incision made in the lower lid.

## INFECTION

Infection within the orbit manifests itself in the form of orbital cellulitis. It is characterized by unilateral swelling of the eyelids, edema of

the conjunctivae, proptosis, partial fixation, and pain on attempted rotation of eyeball. The constitutional symptoms are mild in the early stages but, with the development of an orbital abscess, become those of a severe infection. The treatment consists of hot applications over the eye, chemotherapy, and if necessary, a free exploratory incision into the orbit through the lower lid.



Horizontal section of eye, showing upper surface of lower segment.

## BURNS

Burns of the eye may be due to thermal, caustic, or gaseous agents. They all produce more or less pain, lacrimation, swelling and redness of the lids, edema of the conjunctivae, and in extreme cases, edema and erosion of the corneal epithelium.

In burns due to ultra violet light from electric welding, the symptoms appear after a latent period of eight to fourteen hours and disappear within twenty four to thirty six hours. The treatment is restricted to the frequent applications of 2 per cent. Holocaine ointment, the use of opaque glasses, and cold compresses.

The treatment of burns due to mustard gas (dichloroethyl sulphide) and tear gas (Chloracetophenone and brombenzi-cyanide) consists of frequent irrigations with 1 per cent. sodium bicarbonate solution followed by instillation of sterile petrolatum. Atropine in strengths of 1 to 2 per cent. should be used for corneal complica-

tions. Cocaine must not be used in mustard gas burns. These eyes must never be bandaged but should be protected with dark glasses.

Burns caused by caustic acids or alkalies should be immediately irrigated with generous quantities of water. Thorough mechanical removal of all adherent particles is of extreme importance. A firm, protective coagulum over the conjunctivae is desirable and can be obtained by using a 20 per cent. solution of glycerite of tannic acid, U.S.P. The after treatment depends upon the degree of injury. Atropine should be prescribed if corneal complications develop.

#### EXTERNAL WOUNDS

Wounds of the lids and conjunctivae often complicate lesions of the globe and face. The lids rapidly become edematous, the swelling often closing the eye within a few moments. The treatment consists of washing the skin carefully with soap and water and repairing the torn edges at once with primary sutures. This routine is contrary to the teachings of Dr. Moorhead but is advocated for these wounds because new-formed granulation tissue may produce disfiguring contractures of the eyelids, adhesions between the lids and the bulb, and cicatricial deformities necessitating secondary plastic repair. Where dirt has been carried into the wound, anti-tetanus serum should be given, unless the patient has previously received tetanus toxoid.

#### FOREIGN BODIES

Small foreign bodies in the orbit which are not easily accessible and are not associated with infection should be left alone.

Non-perforating foreign bodies of the conjunctivae and corneae are the commonest of all eye injuries. Good anaesthesia (0.5% pontocaine, 4% cocaine) and proper illumination are essential in removing the invading particles. Metallic foreign bodies often leave a surrounding rust area which must be thoroughly removed. After removal of all except very superficial substances, an antiseptic, such as bichloride of mercury 1:3000, should be applied and the eye bandaged for twenty-four hours. Ulcers and abrasions of the cornea frequently heal without any residuum; however they must be considered potentially dangerous, because of the possibility of infection and perforation. In order to detect their presence, one drop of a 2 per cent. solution of fluorescein is instilled into the conjunctival sac; this colors the denuded area a brilliant yellow-green. If the abrasion is infected, it should be curetted and

cauterized with tincture of iodine or with 10 to 20 per cent. trichloroacetic acid. Rest of the eye is insured by the local administration of homatropine hydrobromide (2 per cent.) or atropine sulphate (1 per cent.) and bandaging.

Anaesthetic ointments are not recommended for painful corneal lesions, due to their tendency to dry the superficial layers of the cornea. If pain is severe, hot moist compresses and oral or subcutaneous analgesics should be prescribed.

#### INJURIES OF THE GLOBE

Perforating ocular injuries resulting from explosions of projectiles differ from penetrating injuries of civilian life by their multiplicity, the occurrence of extensive associated lacerations, and the prevalence of infection. Roentgenograms should be taken in every instance of suspected intraocular foreign body and, if possible, accurate localization should be secured. When the eyeball presents an open wound, application of the magnet to this wound may be sufficient to deliver the foreign body. Non-magnetic foreign bodies lodged anterior to the vitreous should be removed through an incision into the anterior chamber. If they are embedded in the iris, the portion of the iris containing the foreign body should be excised. If they have penetrated the lens, simultaneous delivery of the cataract and the foreign substance is the procedure of choice. Foreign bodies which have entered the vitreous should be extracted immediately through a posterior, scleral incision. When the foreign body is not easily accessible and the eye still has useful vision, there is no indication for operative intervention. The mere presence of an intraocular foreign body does not spell the loss of an eye or great diminution of its vision. Many cases are on record where foreign bodies have been tolerated within the globe from twenty to forty years without inciting an inflammatory response. If the vision is lost and the foreign body is in the vitreous or in the ciliary region, the eye should be enucleated even if it is devoid of pain or irritation.

Perforating wounds of the corneae and sclerae with prolapse of uveal tissue or vitreous should be treated by excision of the prolapse and by covering the wound with a conjunctival flap. If the wound edges are frayed and infiltrated, they should be trimmed and cauterized with 50 per cent. trichloroacetic acid. The injured eye should be put at rest by full dilatation of the pupil with 1 per cent. atropine sulphate and both eyes should be bandaged for a period of five to seven days.

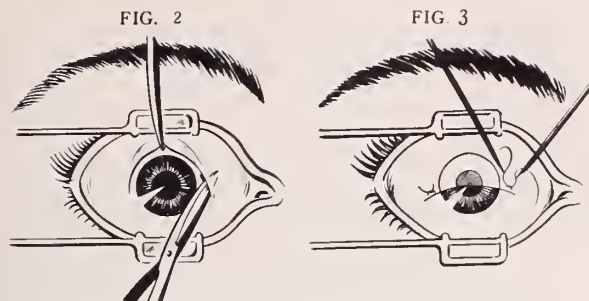


Fig. 2. The eye is anaesthetized by instillation of 4% cocaine and subconjunctival injection of 1% Novocain. The conjunctiva is grasped with forceps at 12:00 o'clock, and severed with scissors between 11:00 and 1:00 o'clock, close to the limbus. It is undermined with blunt and sharp dissection until it can be freely moved down past the midline of the cornea.

Fig. 3. Sutures are placed on the medial and lateral lips of the flap and tied to the underlying conjunctiva at 4:00 o'clock and 8:00 o'clock respectively. 1% atropine is instilled and both eyes are bandaged. The sutures are removed on the eighth day.

Local treatment in every case of perforating ocular wound should be augmented by intravenous or intramuscular foreign protein therapy. For this purpose, 10 cc. of boiled milk may be injected into the gluteal muscles or 25 to 75 million typhoid bacilli may be given intravenously.

#### SYMPATHETIC OPHTHALMIA

Sympathetic ophthalmia is an inflammation leading to atrophy and blindness which occasionally develops in a previously normal eye after its fellow has received a perforating wound. The likelihood of its occurrence is greatest when the site of the perforation is one-quarter inch from the boundary line of the cornea, resulting in exposure and damage to the ciliary body. The disease occurs in the uninjured eye only when the first eye shows signs of irritation due to delayed, improper healing or marked interference with its function.

If, after a perforating wound, the injured eye becomes soft and atrophic, the scar on its surface retracted, the globe sensitive to touch, and the vision failing, it has the potentiality of producing sympathetic ophthalmia. In the uninjured eye, the warning symptoms are photophobia, transient blurring of vision, tearing, and tenderness of the eyeball. The physical signs in either eye are those of a full blown iridocyclitis, *viz.*: violent pericorneal injection; small irregular pupil; muddy, discolored iris; floating opacities in the aqueous and vitreous; and at times, rise in the intraocular pressure. As a rule, sympathetic inflammation supervenes within a few weeks after an injury but there are cases on record where it has occurred many months or even years later. Prompt enucleation of a seriously injured and hopelessly blind eye is the safest measure in the prevention

of sympathetic ophthalmia. The routine employment of foreign protein therapy in ocular wounds is another adjunct in reducing the incidence of this dreaded malady. After the disease is already established, large doses of salicylates (150 to 200 grains daily for an adult) are of some value.

#### BLAST INJURIES

Indirect traumatism caused by explosion of nearby shells and mines, or by violence applied to the tissues adjacent to the orbits may result in concussion or contusion injuries. The force reaching the eye is not sufficient to rupture the cornea or sclera but it is severe enough to produce derangements within the bulb. Disturbances of accommodation, intraocular hemorrhages, cataracts, dislocations of the lens, choroidal and retinal tears and detachments may occur. Such eyes should be placed at rest by dilatation of the pupil, binocular bandage, and strict confinement of the patient to his bed for at least one week.

#### GLAUCOMA

Acute congestive glaucoma is an ofttime emergency met with in times of war. States of excitement, despondency, and fatigue act as precipitating factors in the development and maintenance of high intraocular pressure. An attack usually starts suddenly in the early hours of the morning, ushered in by excruciating pain in the eye and rapid loss of vision. The globe is stony hard, extremely tender to touch, and intensely red and congested. The cornea is dull, steamy and insensitive. The pupil is dilated, the anterior chamber shallow and clouded. The immediate treatment consists of free use of morphine, the instillation of miotics (pilocarpine hydrochloride 2 per cent. and eserine sulphate 2 per cent.) and the intravenous administration of hypertonic solutions of saline or sucrose. Patients who do not respond to this regime within twelve to eighteen hours will have to submit to one of the standard operations for the reduction of increased intraocular tension.

This review is submitted with the hope that it will call attention to the frequency and gravity of ocular lesions during warfare; that it will stress the importance of retention of all possible tissue in the treatment of wounds of the ocular structures, and that it will thus contribute toward the prevention and amelioration of lasting disabilities.

45 Young Building.



# Eclampsia Precipitated by a Violent Emotional Shock

REPORT OF A CASE, WITH RADICAL TREATMENT

G. C. MILNOR, M.D.

Honolulu

Mrs. S., aged 37, nullipara, was 7 months pregnant at the time of the onset of her illness. There had been considerable nausea and vomiting during the first two months of her pregnancy. From the second month to the sixth, she seemed to be getting along very well. Urine and blood pressure were examined every three weeks, and both were normal each time. Her past medical history was not relevant.

At the sixth month, edema of the feet and legs began to appear, but the blood pressure and urine, now being checked each week, showed no evidence of toxemia. A salt-free diet, restricted fluid intake, and ammonium chloride were ordered. After ten days of this therapy the edema lessened, and the blood pressure and urine remained normal up to December 1, when she was last seen at the office.

On the memorable morning of December 7, 1941, she witnessed from close range at Hickam Field the attack on this base and on Pearl Harbor. A few hours after the onslaught she was evacuated from her home at Hickam Field and spent the day in great fear. At midnight on December 7 she began to suffer from a severe headache and nausea, and her vision became impaired. At 3:00 a.m. December 8, she became semi-comatose. When seen at this time her blood pressure was 218/124. Her face was so badly swollen one could not recognize her features. The extremities were also tight with edema.

She was taken to the hospital at once, where a urine examination showed 4 plus albumin and many granular and blood casts. The coma deepened and convulsions began. A pelvic examination showed the fetus to be high, head presenting, and the cervix tightly closed. The fetal heart sounds were good.

100 cc. of 50% glucose was given intravenously every three hours during the day. This, along with nembutal per rectum and magnesium sulphate intramuscularly, failed to improve matters. The blood pressure continued to rise, coma became deeper, and the convulsions became more severe and frequent.

We proceeded to empty the uterus by Cesarean section under local anesthesia; a 3 pound, 1 ounce male infant was thus delivered, alive and active, who continued to live and gain. The mother began to come out of the stupor six hours after operation. In twelve hours her vision began to return. She received two 100 cc. injections of 50% glucose solution after operation. This was the only postoperative therapeutic measure. The systolic blood pressure dropped from 230 to 180 in the first twelve hours postoperatively, and to 140 in forty-eight hours. The urine continued to show heavy albumin for six days, then it too showed less and less each day.

Primary union was secured in the abdominal incision, and the patient was up walking by the twelfth postoperative day, feeling quite herself. The blood pressure at the end of a month was 139/90. The urine showed a trace of albumin with no casts. The baby also was in fine condition and at one month weighed 4 pounds, 7 ounces.

## COMMENT

I feel that fulminating, severe eclampsia of this type is best treated by early removal of the products of conception by whatever method will shock the patient least. Cesarean section seems to be the method of choice in primiparas with a closed cervix. General anesthesia is to be avoided. Opium derivatives are also to be avoided because of their harmful effects on both mother and child.

881 Young St.

# Health Department Services in War Emergency

For the past year, primarily as a result of the national defense program, there has been a rapid increase in our population, requiring additional public health services, especially in environmental sanitation, communicable disease control, food inspection, restaurant sanitation, public health nursing, supervision of water supplies, and problems relating to housing. A situation taxing the Territorial Health Department beyond the point of efficiency existed even before the President declared a state of unlimited national emergency.

With the increasing imminence of war, because of Hawaii's distance from the mainland, the possible disruption of its shipping and its strategic importance to the Army and Navy, the health department recognized the need for not only expanding its regular functions but also preparing for any type of emergency. Plans were made for improving and gearing up all public health service to meet the impending war emergency. Bureau chiefs were instructed to order and keep on hand sufficient supplies for a period of at least six months. Biologic supplies, drugs necessary for emergency use, laboratory supplies and equipment were recognized as especially important items. Measures for the protection of water supply and sewage disposal systems, especially on Oahu, were carefully considered. Plans were evolved to provide a satisfactory sanitary inspection service under emergency situations. A first aid instruction course was organized for the public health nursing force. It was anticipated that the nurses would be called upon for additional services during an emergency, including first aid, bedside nursing, and obstetrical and delivery service.

When the Honolulu Disaster Council was organized, the Territorial Commissioner of Public Health was named chairman of a health and sanitation committee, composed of representatives of various related health, medical and welfare agencies. This committee pointed out in two preliminary reports that its functions would be practically the same as those normally carried on by the Board of Health, except for expansion of specific activities to meet emergencies.

It was recognized that in the event of war the problem would not be so much a matter of revising the type of service offered by the health department, but of extending its normal program

and correlating its services with those of the civil, military and other agencies concerned with the promotion and conservation of health.

Seven months after President Roosevelt's declaration, Pearl Harbor was attacked. Martial law was established and the military governor asked that all departments of the Territorial government continue their special functions.

Within an hour after the first bombs fell, the executive heads of the health department were in conference. The staff on Oahu were placed immediately on 24-hour call. Day and night service was established at the office of the Board of Health and maintained for the following two weeks. An inventory of the biologics on hand at the health department and at the pharmaceutical supply houses in the city was made.

A close liaison was established with the medical departments of the Army and Navy, the medical director of the first aid stations, the medical officer in charge of the Emergency Hospital, and municipal authorities, particularly those in charge of the water supplies, sewerage system, and garbage collection. All were urged to utilize health department facilities.

Instructions were sent immediately to all physicians requesting the reporting of communicable diseases by telephone, and all cases of illness suspected of being caused by contamination of food, milk or water. Subsequently an order from the office of the military governor went out directing physicians to comply with this request. A number of cases of acute gastro-enteritis were reported. Epidemiological investigations and laboratory analyses were made. Most of the cases were traced to consumption of food kept too long under improper refrigeration. No unusual incidence of communicable diseases occurred.

After the attack, essential biologics were distributed to hospitals and first aid unit physicians requesting them. Prophylactic tetanus antitoxin was in particular demand. Physicians were cautioned to limit their requests to those biologics immediately needed.

An immunization station for vaccination against typhoid fever and smallpox was opened in the Board of Health Building; and restaurant and general sanitary inspection services were intensified. Food supplies were carefully checked.

Dairy inspection service was augmented and every assistance given to insure a continued supply of clean and wholesome milk and dairy products.

During the first few days rumors were current that the water supply had been contaminated or poisoned. These were investigated and found to be untrue. Water samples were immediately collected at various points throughout the city. Bacteriological, chemical and physical analyses were made. A portable chlorinator and a supply of chlorine gas were available, but thus far have not been required. Fortunately, no damage to the Honolulu water or sewerage systems was sustained.

In view of the close proximity of many residential districts to military objectives, it was necessary to evacuate large numbers of civilians and military dependents to schools, churches, and other community buildings removed from the points of attack. One of the important services rendered by the nursing department was the health supervision at these evacuation centers. A number of nurses reported to first aid stations and hospitals for emergency nursing services; others, particularly in rural districts, assisted in the setting up of first aid stations and in the obtaining of necessary supplies for their operation.

Public health nurses were placed on call for bedside nursing where needed. Private physicians were notified that this service was available when private nurses were unobtainable.

In anticipation of possible transportation difficulties and the need of hospital beds for other purposes, the Bureau of Maternal and Child Health developed a plan to assist in home deliveries. Delivery packs were prepared and made available, and obstetrical services were rendered by the public health nursing force in a few instances.

With telephone and other communications suspended shortly after the engagement began, it was impossible to obtain information from or issue instructions to the outlying islands. It is noteworthy, however, that the health department's representatives on the outer islands, cooperating with Army and other officials, immediately took steps to protect the water and food supplies, strengthen the control of certain communicable diseases and to utilize other public health services to the best advantage to meet local conditions. Extra supplies of biologics and drugs were distributed to the several islands as soon as transportation became available.

The Territory of Hawaii will continue to play an extremely important part in the prosecution of the present war. What new health hazards may arise cannot be foreseen. Although many health problems will be aggravated because of the war, others may become less acute. Certain general principles of public health and valuable experience already gained will guide health officials in this emergency.

M. F. HARALSON, M.D.

Territorial Commissioner of Public Health  
Board of Health

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## OBSTETRICS DURING MAJOR DISASTER

The stork pays no heed to international affairs, and does not discriminate between war and peace. War or no war, women keep right on having babies; indeed, experience in London has shown that the stress of war conditions may even lead to premature labor or abortion. It follows that any community making plans for "medical defense" must include in them plans for maintaining, or even increasing its obstetrical facilities.

On December 7, 1941, we had a ringside seat at a war. We had anticipated such an event, and had foresight enough to plan for it in advance. We have had a chance to see our plans in operation, and now we have been able to look back and see whether they were adequate and where they might have been improved upon.

### THE PLAN

The following is an outline of the steps we took in preparation for the maintenance and expansion of obstetrical facilities in the event of war.

(1) Obstetricians were assigned to maternity hospital posts instead of being used in other hospitals to care for casualties.

(2) Pediatrician-public health nurse teams, equipped with incubator, oxygen and other equipment, were available for prematures born before the mother could reach a hospital.

(3) A careful survey of all available maternity bed facilities in the community had shown that these were already overtaxed by the rapidly increasing population. It was obvious that the post-partum stay in the hospital would have to be cut down in order to decrease the obstetrical load. Our patients were therefore warned that in case of war we would continue to offer them the facilities of our delivery rooms but would expect them to return to their families earlier than under normal conditions.



(4) Arrangements were made with the hospitals to prevent the encroachment on the maternity department by casualties.

(5) All public health nurses on Oahu were given a refresher course in practical obstetrics to improve their efficiency in home deliveries.

(6) Home delivery packs were made up and kept in readiness in a convenient place for district nurses or doctors.

(7) Nursing personnel in obstetric departments were ordered kept intact regardless of the extra load the rest of the hospital might suddenly be compelled to carry.

(8) All maternity cases were repeatedly advised to continue planning for hospital deliveries, regardless of crisis.

(9) Competent pediatricians and obstetricians were to be kept available for consultation purposes as an aid to the general practitioner, or to cover for him in case he were suddenly pressed into other war-time activities.

(10) Prompt resumption of all obstetric and pediatric clinics was planned as soon as circumstances would permit.

#### HOW THE PLAN WORKED

The obstetric load was carried through this crisis with surprising ease and with a minimum of friction. The delivery services and nursing facilities proved to be adequate. The surprising thing, however, was that we did not get the flood of premature labors or abortion cases which were expected; there was a slight flurry the first day or two, but the incidence was hardly above normal. Whether this was due to the fact that the attack was a completely unexpected one, not preceded by any period of fearful anticipation, or to an unusual degree of courage and self-control on our patients' part, or to some other factors, seems impossible to say. We are not at all sure, however, that a second attack would treat us so kindly, and our plans for caring for an increased obstetrical load are being maintained.

#### WHAT WE HAD NOT PLANNED

No plans can ever anticipate every eventuality; as we looked back over our experiences here we noted that several circumstances, demanding solution, had presented themselves. Here we mention a few:

(1) Immediate and continued blackouts made night traveling very difficult, slow and hazardous. Pregnant women developing symptoms of beginning labor have therefore been advised to contact their physicians before nightfall and to enter the hospital during daylight hours if possible.

(2) The curfew prevented anyone except a few specially privileged classes from being on the streets at night. In the event of onset of labor at night, however, there has been no difficulty in securing special permission for the transportation of pregnant women to hospitals.

(3) A high percentage of our midwives (30 out of 36 in Honolulu) are aliens, therefore, could not secure special permission to be on the streets at night. They were quickly convinced that any of their cases going into labor at night would have to be referred to the nearest hospital as the only solution of that problem.

(4) There was an abrupt increase in incidence of eclamptogenic toxemia. This is understandable when one realizes that a prolonged period of stress would tend to disrupt metabolism and throw a considerable extra load on the nervous system.

(5) Women in early pregnancy whose husbands were killed in the air raid might have been—and were—expected to constitute a serious psychiatric problem. It is gratifying to be able to report that this did not prove to be the case; every such individual responded well to the situation and became reconciled to carrying through with the pregnancy.

#### SUMMARY

The experiences of managing a community-wide obstetrical program in Hawaii before, during and following a sudden major catastrophe are here delineated and tend to prove the importance of an adequate obstetrical program in the event of a sudden disaster. Previously made plans proved very workable in a recent acute crisis although several unanticipated problems arose which were solved without difficulty.

O. LEE SCHATTENBURG, M.D.

# Mental Hygiene in Wartime Hawaii \*

The concerns, reactions, attitudes, problems, thoughts, fears, suspicions and prejudices of an individual are all very important aspects of his functioning, whether this be called his morale or his mental hygiene. The sum total and interplay of all the individual manifestations of mental hygiene in a group result in the mental hygiene of a community.

The events of December 7th and the sweeping changes in every aspect of life in Hawaii since that time have naturally elicited complex and varied reactions in all of us. Before Pearl Harbor most of us proceeded on the basis that if we played the game in conventional ways we could feel secure in our existence, our belongings, our privileges and our way of life. Events have occurred which have lessened the certainty of these convictions. Fear, anxiety, uneasiness and concern of varying degrees have been the normal response in most Hawaii residents. Those who have not shown this reaction are persons whose emotional responses do not adequately reflect external stimuli.

As every physician knows, each person has his individual pattern of response to emotional disturbances. There are some in whom the visceral functions readily become disturbed; these persons now have such symptoms as tachycardia, increased blood pressure, palpitation, anorexia, nausea, heartburn, constipation, diarrhea, urinary frequency, headache and dizziness. Others have had difficulty in sleeping, in concentrating, in making decisions, in keeping their tempers and in intelligently evaluating rumors. Many pre-existing hypertension have increased from 20 to 30 points. Well controlled cases of psoriasis, eczema, lichen planus and urticaria have experienced otherwise unexplained exacerbation. Numerous well controlled chronic sinus infections have become worse and some individuals with quiescent peptic ulcer have experienced a recrudescence.

Many other individual factors have entered into these reactions, including occupational problems, blackout restrictions, food limitations, liquor

prohibition, gasoline rationing, paucity of recreational and social opportunities, irregular mail schedules, censoring of letters and news and the practicing of such wartime measures as carrying gas masks, preparing air-raid shelters, responding to air-raid alarms and receiving "tin hats."

Some hypomanics and psychopaths have not experienced any of these reactions and are now adjusting better than most of us. Other unstable individuals are less able to deal with these reactions and many of them are being treated by physicians for visceral complaints, sleeplessness, anxiety or full-blown psychoneuroses. Psychotic individuals who could be kept in the community in normal times have in some instances been committed. The number of major psychoses treated in the Clinic of the Bureau of Mental Hygiene, at the Queen's Hospital, in the month following the onset of the war was slightly less than the number treated in the previous month. In general, however, the intensity of the reactions seen in the Clinic has been more than the average of those previously seen.

The physician can best serve by recognizing the nature of insecurity reactions and by treating each case individually. Treatment will include efforts to remove as much tension as possible by discussing the patient's situation in detail, by helping him secure social and recreational interests and satisfactions, by reassuring him and by the application of other valid psychiatric procedures. Some cases will be sufficiently complex to justify referral. In general the mental hygiene of the community at the present time will be best preserved (1) by keeping everyone effectively busy but allowing reasonable time for rest and recreation, (2) by encouraging social, recreational and hobby activities, (3) by discouraging rumor, racial prejudice and unnecessary restrictions, and (4) by providing competent leadership in all types of activity.

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\* From the Bureau of Mental Hygiene, Board of Health  
Doctor Edwin E. McNiel, Director  
Doctor William M. Shanahan, Assistant Director

# What to Do About Poison Gas

(This article was prepared by the Emergency Medical and Ambulance Service, Office of Civilian Defense, for the purpose of educating the public in the matter of defense against poison gas. It is approved by Colonel George W. Unmacht, Chemical Warfare Service, United States Army, Territorial Coordinator for Gas Defense, and printed here by special permission.)

For some reason almost all people are more afraid of an attack by gas than they are of an attack by explosive bombs. As a matter of fact, the danger from an attack by gas is probably less than that from explosive bombs *provided the people who are being attacked know what to do and are equipped to do it.*

There are many different gases used in warfare. It is not possible for the average person to learn enough about them to be able to tell what gas is being used. Some are harmless smoke, some merely make one cry, some make the eyes, mouth and throat sting, etc.; and some are really poisonous. It is best to pay no attention to what kind of gas is being used but *if there is gas in your vicinity, behave as though you knew that it was poisonous gas.*

## GENERAL PRECAUTIONS

*The gas mask issued to the people of Hawaii will protect them against the danger of breathing any poisonous war gas.* (It will not protect against sewer gas or illuminating gas.) If by the action of the enemy, bombs or shells or sprays of liquid which result in *fumes or smells of any kind* are noticed in your neighborhood, *immediately* put your mask on as you have been instructed to do. If you are in a situation where you can easily move towards the direction from which the wind is coming, or uphill, that is an additional safeguard. Almost all war gases are heavy and tend to stay close to the ground. It is better to be up high in a house, on a building, on a hill or a fence than it is to be on the ground.

## GASES THAT POISON THE LUNGS

Everyone should understand that there are two principal kinds of poison gas used in warfare. One kind is very light; it blows away quickly. It may be seen for a short time but quickly disappears from sight and smell, and if there is

any wind blowing, in a very few minutes it will be gone. Since it is only harmful if breathed into the lungs, your gas mask will completely protect you against it if you put it on immediately, before you have breathed any of the gas, and keep it on till the gas is gone. When you have had proper teaching in the use of a gas mask, you will have been told how to test as to whether or not the gas is gone. This is done by cautiously sniffing out of the side of the mask, to see whether the smell is still there. This kind of gas will never be dangerous for a long time if there is any wind blowing; neither will it burn the skin.

## GASES THAT POISON THE LUNGS AND BURN THE SKIN

The other kind of gas is one which is like a liquid when it comes out of the bomb or shell or when it is dropped from a plane in liquid form. (Remember that *gas bombs or shells make very little noise* when they explode, compared to an explosive bomb.) These liquid gases are likely to be visible as a fog or mist along the ground. They are also likely to make the grass or leaves of trees or bushes look wet. One of them—"mustard gas"—may smell like onions or garlic; the other—"Lewisite"—may smell like flowers or very ripe fruit. *These are the most dangerous gases*, and walking over ground or around leaves or grass where these have been sprayed in liquid form is extremely dangerous *even if you are wearing a gas mask.*

## CARE OF LIQUID GAS BURNS

If you are close to a bomb or a shell that has exploded and liquid is spattered on you, or if you touch a bush wet with liquid gas, or walk on ground wet with it, you need to get your clothing off and get the liquid off your skin instantly. Do not go into the house until you have removed clothing that has been spattered with the gas—if you do you are likely to injure the people in the house and injure yourself if you take the gas mask off inside the house. *You must wear a gas mask* all the time until your clothing is off and you have gotten entirely away from the place where the liquid has been spattered. If the eyes are affected they should be rinsed out with peroxide or weak baking soda solution. If the liquid actually strikes your skin you should first of all try to blot it off with a dry cloth, hand-







CLASS	NAMES AND SYMBOLS	FORM	ODOR	PHYSIOLOGICAL EFFECT	TACTICAL CLASS	PROTECTION	FIRST AID (After removal from gassed area)	PERSISTENCE	FIELD NEUTRALIZATION	GENERAL INSTRUCTIONS
VESICANTS	<b>MUSTARD</b> <small>DI-CHLOROETHYL SULFIDE</small> $S(CH_2CH_2)_2Cl_2$	LIQUID AND VAPOR	 Garlic, Horseradish, Mustard	Delayed effect. Burns skin or membrane. Inflammation respiratory tract leading to pneumonia. Eye irritation, conjunctivitis.			Undress, remove liquid mustard with protective ointment, bleach paste, or kerosene; bathe, wash eyes and nose with soda solution.	One day to one week. Longer if dry or cold.	Cover with unslaked lime and earth. 3% solution of $Na_2SO_3$ .	<p>The importance of proper first aid for gas victims cannot be overemphasized. The following are general rules which apply in all cases.</p> <p>A. Act promptly and quietly; be calm.</p> <p>B. Put a gas mask on the patient if gas is still present or, if he has a mask on, check to see that his is properly adjusted. If a mask is not available, wet a handkerchief or other cloth and have him breathe through it.</p> <p>C. Keep the patient at absolute rest; loosen clothing to facilitate breathing.</p> <p>D. Remove the patient to a gas-free place as soon as possible.</p> <p>E. Summon medical aid promptly; if possible, send the victim to a hospital.</p> <p>F. Do not permit the patient to smoke, as this causes coughing and, hence, exertion.</p>
	<b>LEWISITE</b> <small>CHLOROVINYL DICHLORARSINE</small> $CHClCH-AsCl_2$	LIQUID AND VAPOR	 Geraniums	Burning or irritation of eyes, nasal passages, respiratory tract, skin. Arsenical poison.			Undress; remove liquid Lewisite with hydrogen peroxide, lye in glycerine, or kerosene; bathe; wash eyes and nose with soda. Rest—Doctor.	One day to one week. Longer if dry or cold.	Wash down with water. Cover with earth. Alcohol. NaOH spray.	
	<b>ETHYLDICHLORARSINE</b> $C_2H_5-AsCl_2$	LIQUID AND VAPOR OR GAS	 Stinging, like pepper in nose	Causes blisters, sores, paralysis of hands, vomiting. Severe on long exposure.			Undress; remove liquid with hydrogen peroxide lye in glycerine or kerosene; bathe; wash eyes and nose with soda. Rest—Doctor.	One hour.	Cover with earth, caustic.	
LUNG IRRITANTS	<b>CHLORINE</b> $Cl_2$	GAS	 Highly Pungent	Lung irritant.			Remove from gassed area. Keep quiet and warm. Coffee as stimulant.	10 minutes.	Alkaline solution.	
	<b>CHLORPICRIN</b> <small>NITROCHLOROFORM</small> $CCl_3NO_2$	GAS	 Firepaper, anise	Causes severe coughing, crying, vomiting.			Wash eyes, keep quiet and warm. Do not use bandages.	Open 6 hours. Woods 12 hours.	$NaSO_3$ —Sodium sulfite in alcohol solution.	
	<b>DIPHOSGENE</b> <small>TRICHLORMETHYL CHLOROFORMATE</small> $ClCOCOC-Cl_3$	GAS	 Ensilage Acid	Causes coughing, breathing hurts, eyes water, toxic.			Keep quiet and warm. Give coffee as a stimulant.	30 minutes.		
	<b>PHOSGENE</b> <small>CARBONYL CHLORIDE</small> $COCl_2$	GAS	 Wet hay, Green corn	Irritation of lungs, occasional vomiting, tears in eyes, doped feeling. Occasionally symptoms delayed. Later collapse, heart failure.			Keep quiet and warm, bed rest. Coffee as a stimulant. Loosen clothing. No alcohol or cigarettes.	10 to 30 minutes.	Alkali.	
LACRIMATORS	<b>CLORACETOPHENDNE</b> $C_6H_5CO-CH_2Cl$	GAS	 Apple Blossoms	Makes eyes smart. Shut tightly. Tears flow. Temporary.			Wash eyes with cold water or boric acid solution. Do not bandage. Face wind. For skin, sodium sulphite solution.	10 minutes.	Strong, hot solution of sodium carbonate.	
	<b>BROMBENZYL CYANIDE</b> $C_6H_5CH-BrCN$	GAS	 Sour fruit	Eyes smart, shut. Tears flow. Effect lasts some time. Headache.			Wash eyes with boric acid. Do not bandage.	Several days. (Weeks in winter.)	Alcoholic sodium hydroxide spray.	
STERNUTATORS	<b>ADAMSITE</b> <small>DIPHENYLAMINECHLORARSINE</small> $(C_6H_5)_2-NHAsCl$	GAS	 Coal Smoke	Causes sneezing, sick depressed feeling, headache.			Keep quiet and warm. Loosen clothing. Reassure. Spray nose with neo-synephrin or sniff bleaching powder. Aspirin for headache.	10 minutes.	Bleaching powder solution.	<p><b>KEY</b></p> <p> HOSPITAL CASE</p> <p> FIRST AID TREATMENT</p> <p> SMOKE</p> <p> INCENDIARY</p> <p> MASK PROTECTION NEEDED</p> <p> FULL PROTECTIVE CLOTHING NEEDED</p>
	<b>DIPHENYLCHLORARSINE</b> $(C_6H_5)_2-AsCl$	SMOKE	 Shoe Polish	Causes sick feeling and headache.			Remove to pure air, keep quiet. Sniff chlorine from bleaching powder bottle.	Summer 10 minutes.	Bleaching powder solution.	
SMOKES	<b>H C MIXTURE</b> $ZN-C_2Cl_6$	SMOKE	 Sharp Acid	Harmless.			Produces no effect requiring treatment.	While burning.	None needed.	
	<b>SULPHUR TRIOXIDE</b> <small>IN CHLORSULFONIC ACID</small> $SO_2, SO_3HCl$	SMOKE	 Burning matches	Causes pricking of skin, flow of tears.			Wash with soda solution.	5 to 10 minutes.	Alkaline solution.	
	<b>TITANIUMTETRACHLORIDE</b> $TiCl_4$	SMOKE	 Acrid	Harmless.			Produces no effect requiring treatment.	10 minutes.	None needed.	
	<b>WHITE PHOSPHORUS</b> $P$	SMOKE	 Burning matches	Burning pieces adhere to skin, clothing.			Pack in cloths wet with copper sulphate (blue vitrol) or water or immerse in water. Pick or squeeze out particles. Treat for burn.	10 minutes.	Burns out.	
INCENDIARIES	<b>THERMIT</b> $8Al-3FeO_4$	INCENDIARY	 None	5,000 degree heat ignites materials.			Treat for severe burn.	5 minutes.	Quickly cover with earth or sand.	



kerchief or a piece of cotton. *Do not rub the skin*, merely blot. If you can find ordinary white gasoline (*not ethyl*) or dry cleaning fluid (inflammable) or kerosene it is advisable then to carefully mop the skin with this liquid. If you have Clorox or Zonite, they may be used in place of the kerosene or gasoline. If you have bleaching powder, known also as "chloride of lime", a solution or paste of this may be put on the skin but it should be washed off very soon because *it also will burn you if left on for more than a few minutes*. Hydrogen peroxide also is excellent and harmless. Even ordinary baking soda (bicarbonate of soda) in solution or paste may be used if nothing else is available. If nothing else is available take a shower bath with soap; laundry soap is better than toilet soap. *Take a shower anyway, even after using any of the other methods mentioned.*

#### AFTER FIRST AID

After the first aid treatment, be careful not to rub or scratch the spot where this gas has irritated the skin because you will rub the skin off very quickly. These gases are also apt to make one cough, and to make the eyes run, itch and burn. You should be taken (do not try to walk) to the nearest aid station or hospital as soon as you have succeeded in getting off the clothing and cleaning your skin and putting on perfectly fresh clothing.

#### REST IS ESSENTIAL

Anyone who has breathed any poisonous gas should be *compelled to rest for many hours*. Only a doctor can tell when it is safe for him to walk. A person may feel perfectly well after breathing some of these gases, and yet become dangerously sick if allowed to walk. Call for an ambulance or a doctor if in doubt. Don't even walk victims to a hospital or aid station.

#### LIQUID GASES POISON CLOTHING

Clothing which has the gas on it should be left outdoors and as soon as possible should be wet with the solution of bleaching powder or should be buried or burned. Shoes which have been worn in a neighborhood where this gas has been used are also likely to be extremely dangerous and should be discarded. They will probably never again be any good. If shoes and silk or woolen clothing are treated with the Clorox, Zonite or bleaching powder solution, it will probably destroy them but it must be done just the same because otherwise they might kill you if you used them again.

#### LIQUID GASES POISON SOIL TOO

If these gases fall anywhere in the neighborhood of a dugout or bomb shelter under the ground, remember that they will run into a low spot just as water will. Bomb shelters below ground level, cellars, and other low places are extremely dangerous when this type of gas has been used. *You should not go in them until they have been treated* with some substance which will neutralize the gas, such as bleaching powder. The Army has special troops, and civilian personnel will be trained, to clean up any area where gas has been used, and when notified they will come and attend to this. Stay far away from such areas until they have been cleaned up!

#### LIQUID GASES POISON FOOD AND WATER

*Food which has been exposed to gas of this type must not be used. Water which has been in an open container near this gas must not be used* for drinking purposes, even years afterward. The only foods which would be safe to eat after they have been in an area where these gases have been used are those in airtight containers. Any others must be burned or buried; they can never be used.

H. L. ARNOLD, M. D.



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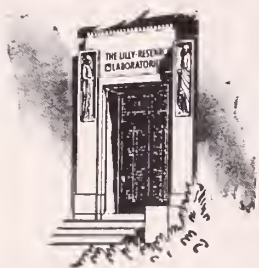
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## EDITORIALS

### "PUBLICATION AUTHORIZED"

The delay in the publication of this issue of the Journal is due in part to the pressure of activity following the events of December 7th which delayed the preparation of material by the authors and in part to the necessity for securing permission from the office of the Military Governor for continuance of publication. That permission was finally received on January 15th, and is quoted for the record:

#### HEADQUARTERS HAWAIIAN DEPARTMENT

OFFICE FOR THE ASSISTANT CHIEF OF STAFF FOR  
MILITARY INTELLIGENCE  
FORT SHAFTER, T. H.

15 January 1942

Mrs. Elizabeth D. Bolles,  
Secretary & Business Manager,  
Hawaii Medical Journal,  
510 South Beretania Street,  
Honolulu, T. H.

Dear Mrs. Bolles:

This is formal authorization for your continuance of the publication of the Hawaii Medical Journal.

One copy of each edition should be sent to the Public Relations section of this office.

In case of material of a doubtful nature your editor should consult with the head of the Public Relations section.

Very truly yours,

KENDALL J. FIELDER,  
Colonel, G.S.C.,  
A. C. of S., G-2.

### LET'S HAVE ACTION NOW!

In 1937, the Queen's Hospital, with a bed capacity of 247, reported an average of 18.6% of its bedspace unoccupied and no need for additional bed facilities. In October, 1941, the Queen's with capacity increased to 274, reported it was without vacant beds, and estimated its additional need at a minimum of 100 beds.

In 1937, St. Francis Hospital reported an average of 5% of its bedspace unoccupied. In October, 1941, with an increase in beds to 67, it was without vacant beds, and estimated its additional needs at a minimum of 100 beds.

In 1937, Kapiolani Maternity and Gynecological Hospital, capacity 44 beds, reported an average of 19.8% of its bedspace unoccupied and no need for additional bed facilities. In October, 1941, with bed capacity increased to 51, it was without vacant beds, and was providing for as many as ten additional patients with improvised facilities. At least 50 additional beds were badly needed.

Much has happened in Honolulu since October, and especially since December 7, to aggravate these needs.

If the accepted standard is correct, namely that a hospital is to be considered as carrying a capacity load if 80% of its beds are occupied, the problem becomes more acute.

There has been much talk about permanent additions to the hospitals to meet the need; but it is obvious that none of these plans can be carried out within a year at the earliest.



Provision is to be made under army direction for the establishment of new civilian hospitals to be ready and waiting in case of disaster. These will provide beds, but cannot immediately be expected to provide the many items of special equipment which go to make up the excellent facilities of our established hospitals.

The urgent need is for temporary bed accommodations at the Queen's, at Kapiolani, and at St. Francis hospitals with sufficient personnel to care for patients occupying them.

Under no circumstances should a condition be permitted to continue which may mean denial to desperately ill patients of the facilities which our hospitals provide.

The situation calls not for plans incapable of execution at this moment, though possible sometime in the future, but for some ACTION NOW, which will increase the bed capacity of these three hospitals.

L. G. P.

### MEDICAL UNPREPAREDNESS

When Territorial Delegate Samuel W. King visited Honolulu the latter part of December for the purpose of viewing first hand the results of the Japanese attack and the preparations for the future, he remarked that he had seen and heard so many good things about our defensive measures that he wondered whether we had made any mistakes at all. He was told—and we have no hesitation in repeating here—that we had.

*We had devised but had not actually obtained any adequate system of air raid warnings. This point certainly requires no elaboration.*

*We had not agreed upon any adequate method of dimming the headlights and tail lights of automobiles for necessary night driving. One proposed method which cost about \$30 per car was applied to a number of automobiles and was promptly condemned as unsatisfactory as soon as the blackouts began. The method now in use consists simply of special blue paint over the whole lens and black paint over all but a 2 inch central circle. It costs only a few cents, plus a small labor charge, per car.*

*No adequate preparation had been made for blacking out homes. "Practice blackouts" had*

been held on several occasions, but in all of them people had merely turned out their lights and then either retired for the night or sat in their front rooms to watch the darkening city. As a result of this lack of preparation, many people are still decidedly uncomfortable in their homes after dark. Ventilation of the blacked out portion of the house has been one of the most difficult problems; some have solved it by construction of a zigzag "tunnel" of black paper and lath opening either outdoors or into an open, darkened outer room, and a fan set inside the tunnel. Mainland cities please take notice: a "practice blackout" is useless unless it is held **all** night for several successive nights. Only in this way will it succeed in compelling people to make adequate arrangements for living in their blacked-out homes. The depressing effects of inadequate ventilation must be experienced to be fully appreciated.

*Fire and air-raid wardens had been recruited, but not adequately prepared for their special duties. Their training is going forward rapidly now, but it might far better have been done before the attack began.*

*Our store of blood plasma as is recounted at length elsewhere in this issue was inadequate.*

The point need not be further labored here; but it may be pointed out as a generality that injuries in modern war, whether they be burns, vesicant gas injuries, or trauma from high explosive bombs or shells, are likely to occur in relatively large number, and preparation to meet them should be made accordingly.

Finally, *our office of civilian defense existed only in skeleton form, and largely on paper. Only the medical defense offices, under the auspices of the Medical Preparedness Committee of our county medical society, were actually organized and operating. The inevitable confusion that follows an enemy attack makes the organization and establishment of a local O.C.D. many times more difficult then, than during "peace" time. The lesson is obvious.*

It is with the hope that our experience here may be made as useful as possible to those undertaking defense measures elsewhere, that these errors of omission are recounted. *Verbum sapientibus!*

—H. L. A., Jr.

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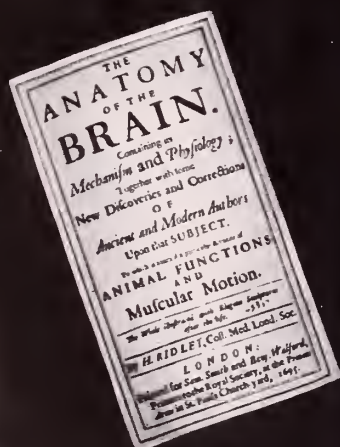


\*Facts from: *Proc. Soc. Exp. Biol. & Med.*, 1934, 32, 241-245; *N. Y. State Jrl. of Med.* Vol. 35, No. 11,590; *Arch. of Otolaryngology*, Mar. 1936, Vol. 23, No. 3,306.

# Storm Center

## ...THE BRAIN

From the "elegant sculptures after the life" which are found in that classic anatomical volume of 1695, credited to H. Ridler—"The Anatomy of the Brain."



When electroencephalography records the brain potential of epileptic patients prior to and after the use of Kapseals Dilantin Sodium, the oscillograph usually depicts more normal brain waves. Furthermore, seizures diminish in frequency and severity. As a result of this, the patient's general attitude and behavior are favorably influenced and he is permitted to enjoy a more normal life.

A combined report of thirteen clinicians states that in 404 out of 595 epileptic patients, Dilantin Sodium was more effective than other anti-convulsants<sup>1</sup>. Its value in patients not responding to other medication has been reported<sup>2</sup>. All in all, Dilantin Sodium (phenytoin sodium), a product of long and systematic research in clinic and laboratory, marks a definite forward step in the management of epilepsy. Complete details upon request.

1. Council Report: J.A.M.A., 113: 1734, 1939

2. Merritt, H. H. & Putnam, T. J.: A. J. Psychiat., 96: 1023, 1940

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# PROGRESS IN INTERNAL MEDICINE

## BLAST INJURIES OF THE LUNGS

In World War I, and again in recent warfare, the occurrence of extensive pulmonary injury, at times fatal, has been recorded in persons exposed to the effects of high explosive bombs, even though there was no accompanying penetrating thoracic wound, or other external body injury.

### Experimental Study

S. Zuckerman (S. Zuckerman, *Experimental Study of Blast Injuries*, *Lancet*, August 24, 1940, 239:219-224) studied the effects of blast in animals. He records that the fatality rate was very high in animals exposed to high explosive blast effects within a distance of 15 to 18 feet, even though there were no external signs of body injury. Within this radius a sudden intense pressure of 60 pounds or more per square inch was produced. This was of very short duration and was followed by a slower sucking action of about one-fifth or one-sixth the intensity. The theories of the damaging action upon the lungs are somewhat controversial, but Zuckerman believes it is probably directly from this sudden intense pressure upon the chest wall compressing the ribs against the lungs. The pathological findings consisted chiefly of *hemorrhage*: subpleural, alveolar and intrapulmonary. Hemorrhage was most abundant in the anterior and inferior borders, and in the costal and mediastinal surfaces. There was also rupture of alveolar walls, tearing of alveolar capillaries, and interstitial hemorrhage.

### Clinical Features of Blast Injuries

These were well presented in a paper by O'Reilly and Gloyne (J. N. O'Reilly & S. Roodhouse Gloyne, *Blast Injuries of the Lung*, *Lancet*, October 11, 1941), a summary of which follows: *Shock*, evidenced by pallor, cyanosis, and rapid pulse of poor volume in more serious cases.

*Dyspnea* in all patients. The respiratory difficulty was due in part to pain, and to extreme bulging of the chest, which appeared to be in the position of almost full inspiration.

*Cyanosis* was obvious in most severe cases, and present in all the others.

*Chest pain* was of two types: a central deep constant pain (perhaps related to mediastinal hemorrhage); and a less severe pain felt more laterally and increased in intensity on deep breathing (this may have been due to contusion of the intercostal muscles).

*Abdominal pain* also occurred and in two cases was so severe and associated with such marked abdominal tenderness and rigidity as to lead to exploratory operation. This pain and rigidity was explained by the thoracic muscle hemorrhages, which caused irritation of intercostal nerves, or by actual damage to the abdominal muscles themselves.

*Hemoptysis* occurred but was usually not an outstanding symptom.

*Cough* did not develop until 24 hours after the injury. A number of cases then had troublesome cough, and, in many, thick mucopurulent *sputum*, sometimes stained with dark blood, appeared. Restlessness was extreme in some cases, and was due to associated intracranial blast injury.

### Physical and Radiological Signs

Most frequently noted signs were: Chest three-quarters expanded, with marked reduction of respiratory movement on both sides. Resonant percussion note in the early stages. Weak breath sounds, especially at the bases. Coarse rales audible, entire lung fields. Later signs conformed to the clinical picture of lobar pneumonia at one lung base.

The characteristic x-ray finding was heavy mottling scattered in larger or smaller areas of the lung fields. This was due to interstitial or alveolar hemorrhage, and varied in density and extent, and in rapidity of clearing, with the severity of the blast injury. Pneumothorax, atelectasis, and later developing bronchopneumonia were also observed by roentgenogram.

### Pathological Findings

The most striking feature in the autopsies was effusion of blood. This varied from capillary oozing to large hemorrhages. There was also rupture of elastic tissue and capillaries in the most affected parts, and secondary infection with streptococci, causing the development of bronchopneumonia.

### Treatment

Treatment recommended is rest, heat, and morphia for shock. Plasma is preferable to whole blood for transfusions. Oxygen is highly beneficial. Sulfapyridine is recommended for complicating bronchopneumonias.

S. E. DOOLITTLE, M.D.

260

190

*"The importance of hypertension as a problem of health needs emphasis. High blood pressure is both a common disease and a serious one. Indeed, it appears to be more common and more deadly than cancer." — Allen, E. V., Medical aspects of arterial hypertension. Bull. N. Y. Acad. Med., 17, March 1941.*

**T**REATMENT of arterial hypertension today is necessarily directed in most cases toward relief and not cure. When a cure cannot be effected, or control by rest and dietary measures is impossible, the employment of medical treatment is suggested. Among the various preparations available, Erythrol Tetranitrate offers the advantage of producing a reduction in blood pressure sufficiently prolonged so that administration three times daily may maintain the reduction. It may be prescribed over a prolonged period with sustained effect.

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# RECENT ADVANCES IN SURGERY

## THE MANAGEMENT OF WAR BURNS

This epitome on the treatment of burns is a result of a four months' tour of mainland clinics from August to November, 1941, together with observation of a series of 200 cases during the catastrophe on December 7th.

It is not my purpose to go into any arguments concerning the personal ideas regarding the virtues of different drugs or methods that many of us may prefer, but to offer what is considered the "ideal therapy" in burns.

At the outset we must discard the use of tannic acid, ferric chloride, picric acid and the like, because of their great tendency to produce a constriction and gangrene of the extremities, as well as to allow infection to be held in the burned tissue. The triple dye method has the drawback of being exceedingly messy and difficult to carry out.

### Local Treatment

The treatment of choice in burns is Triethyl-diazine, or sulfadiazine in triethanolamine solution, which is produced by Lederle and which we are fortunate enough to have, though only in small quantities, in Hawaii. For purposes of simplicity, we shall hereafter refer to this as Sulfadiazine Solution. It can not be made from sulfadiazine tablets, nor is any other sulfonamide preparation suitable for this use. It is applied as a spray, using an ordinary insect spray gun.

At the present we have enough of this solution in Hawaii to treat approximately 1,000 cases and a sufficient amount has been ordered from Lederle to treat at least 5,000 more. When it arrives each island will be supplied with an amount proportionate to its probable needs.

**The most essential thing in the treatment of burns is that the burned area must be cleansed, and due regard must be paid to every burn, since it is an infected wound at the beginning.** Therefore, before the drug is sprayed on the burned area, there must be careful cleansing, preferably with soap and water, under anesthesia, if necessary; the area is then dried and the liquid spray applied, as given in the directions to the burn teams. Besides spraying the area, sulfadiazine, 1

Gm. every 4 hours, is given for 3 days by mouth; and in cases with severe burns, in which infection is quite evident, Sodium Sulfadiazine is given intravenously, 0.1 Gm. per kilo in 5% solution of distilled water.

### Plasma

The use of plasma is perhaps even more important than the local treatment of burns, as 80 to 90 percent of severely burned individuals die from secondary shock in the first 12 to 24 hours. The only means we have of combating this shock is by adequate doses of plasma given intravenously, preferably before the onset of shock and continued up to 48 hours or longer, if needed.

How does one determine when to use plasma? A second or third degree burn of one extremity can produce enough shock to kill a patient, and for this reason not only the depth, but also the size and distribution of the burn is, in a manner, a determining factor of the dosage. There are two methods of determining the amount of plasma for burns, and the formula below is the most accurate method. May I urge you to calculate a test case to acquaint yourself with the formula, as it requires only about 10 to 15 minutes to find the correct amount.

### *Formula For Determining The Amount Of Plasma Required In Burns*

Normal plasma volume 5% body weight

Normal hematocrit 43

Normal plasma protein 7 gms per 100 cc

1 kilogram=2.2 lbs.

Plasma protein deficit in grams=3.5 W—

$W(100-H_o) H_n Po$

$2 (100-H_n) H_o$

W =body weight in kilograms

H<sub>o</sub> =observed hematocrit, per cent cells

H<sub>n</sub> =normal hematocrit for patient

Po =observed plasma protein concentration grams per hundred cc.

The deficit in gms of protein multiplied by 14 gives the cubic centimeters of plasma required for transfusion.

### *"Short-Cut" Method Of Determining The Amount Of Plasma Required*

- A. For a 150 lb. individual 100 cc should be allowed for each point the hematocrit is elevated above 43.
- B. Add 50 cc of plasma for each tenth gram per cent which the plasma is below 7.0.



- C. The total amount is adjusted for the actual weight of the patient.

Example: If the hematocrit is 10 points above normal, or 53, and the plasma protein six tenths of a percent below normal, or 6.4, the amount of plasma required for a 150 lb. man would be 10 times 100, or 1000 cc., plus six times 50, or 300 cc., making a total of 1300 cc. If the patient is a 30 lb. child, only one fifth of this amount or 260 cc would be needed.

- D. If total amount of this method indicates over 1500 cc required, then use mathematical formula as above.

It is essential that each burn unit have a falling drop apparatus for determining the plasma protein and also tubes for hematocrit studies. At present there is a shortage of the falling drop apparatus in Honolulu, and I should like to urge each hospital to make application or send direct to the factories for one. This apparatus may be ordered from Eimer and Amend, 205 Third Avenue, New York City, N.Y., and each hospital on the outlying islands should be supplied with these items:

Number 18131	@ \$60.00
Number 18131 C	@ 1.50
Number 18131 H	@ 6.50
Number 18131 K	@ 2.00
Number 18131 M	@ .75

Adrenal cortical extract (Eschatin), 5 to 10 cc. every 6 to 8 hours intravenously, depending on severity of the burn, has been found to decrease capillary permeability and retard the loss of plasma. It is essential, therefore, that a supply of adrenal cortical extract, in the form of Eschatin or a similar product, be on hand, and here again as in using plasma it must be started as early as possible, as both the plasma and the Eschatin help to prevent the tremendous plasma loss.

With this plasma loss, there occurs a hemoglobin concentration in which the hemoglobin may go up to 125 or 150%, with the RBC from 6 to 8 million. This, as you all know, means a more viscous blood, with failure to carry oxygen, and carries on the vicious circle established by the burn. For this reason, oxygen should be given, preferably by a Boothby-Lovelace mask. I can not stress too much the great importance of supplying oxygen to these burn cases, as many authorities believe that it is the anoxia which produces the liver and kidney damage which so often follow severe burns. Since there is a shortage of Boothby-Lovelace masks, a nasal catheter or oxygen tent may be used; 4-6 liters per minute is the requirement.

### Infection

If the patient survives the initial or secondary shock, as well as liver and kidney damage, he may still die from infection. A burn case must be treat-

ed with the same care we demand in opening an abdomen: hence the head, face, nose and mouth of each team member must be masked. Their hands are scrubbed and sterile gloves and gowns are worn in the handling of these cases. It is believed by many authorities that most streptococcal infections of burns are introduced by the handling of the burn case, and I appeal to those of you who treat burns to remember that a burn can be infected by bad technique just the same as any other wound.

Sulfadiazine will not work if there is a lot of burned and charred material, including skin and underlying tissue, present. The wound must be made clean and sulfadiazine will act as a pliable eschar which will cover the wound and require less care than with any other burn technic. In severe burns, sterile sheets are used, the patient being placed on a sterile sheet and covered by a cradle over which sterile sheets are used.

### Anesthesia

Concerning anesthesia, I feel that the experience with intravenous anesthesia on December 7th has definitely ruled it out. The anesthetics of choice when cleansing a severe burn are: first, ether; second, nitrous oxide and oxygen; and third, cyclopropane.

Morphine should be given in large doses, and frequent assurance given to the patient that all is going well.

### Burn Teams

In our various hospitals in Honolulu we have organized burn teams and the routine orders are as follows:

1. All burn squads are masked to above the nose.
2. Hands are scrubbed 5 minutes and sterile gloves and gowns donned.
3. Patient is placed on sterile sheet.
4. Patient is anesthetized with ether, nitrous oxide, or cyclopropane, *not* with intravenous anesthesia.
5. Complete blood count, hemoglobin, hematocrit and blood plasma determinations are made.
6. Plasma, 500 cc, is started by vein.
7. Eschatin, 5-10 cc. every 6 hours intravenously.
8. Debridement; soap and water, scrubbing gently but thoroughly and irrigating with sterile water.
9. Spray sulfadiazine solution as debridement is progressing.
10. On return to bed give oxygen, by Boothby-Lovelace mask if available.
11. Use heat cradle, covered with sterile sheets and blankets.
12. Elevate foot of bed 18-24 inches.
13. Spray burned areas every hour during the first day, every 2 hours the second day, every 3 hours the third day, and every 4 hours the fourth day.
14. Sulfadiazine 1 Gm. every 4 hours for 3 days by mouth.
15. Morphine sulphate, gr.  $\frac{1}{4}$ , p.r.n.

F. J. HALFORD, M.D.

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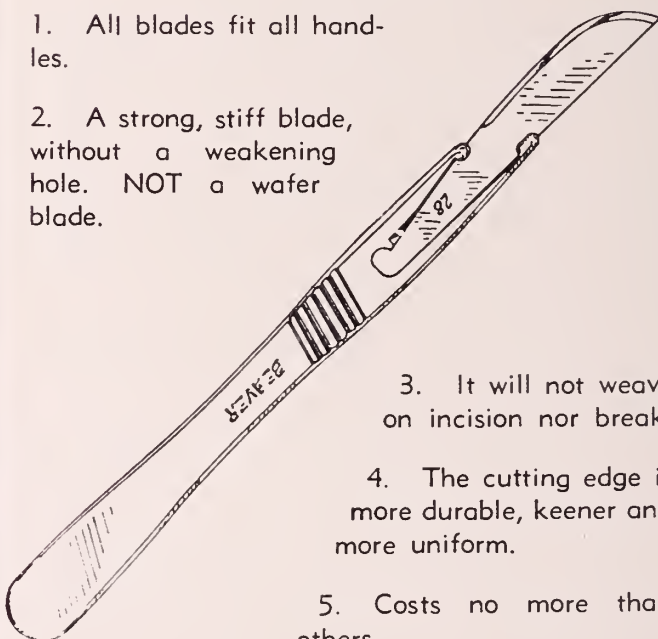
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### PLASMA MANUFACTURE

*It has learned* that the very best way to make plasma is by a wholly "closed system." The number of contaminations is directly proportional to breaks in that "closed system" technique. In war-time mass production, such a closed system technique may have to be broken, deliberately, but it then should be guarded by the aseptic and antiseptic methods of the bacteriological laboratory rather than by those of the operating room. An open wound will care for far more air-borne, or finger-borne, contaminants than will a batch of blood plasma. The technique of a tonsillectomy is to be forgotten; the technique of the bacteriological culture tube is to be remembered.

*It has learned* the meaning of that American slang word "bottleneck." One may have an abundance of donors, and blood receptacles; one may have a well-trained group of technologists, and adequate autoclave space,—but if one does not have ample rubber tubing, observation tubes that take a needle, and an adequate supply of 15 or 16 gauge needles, one is tempted to break technique, and that leads to great losses of plasma.

*It has learned* that suitable publicity and executive ability are prime requisites for the operation of a rapidly producing plasma bank, but *it has also learned* that competent and authoritative technical supervision are equally essential. It is better to cut the yield in half than to lose half the yield.

*It has learned* that the time to organize a whole-blood bank, with a large list of donors, typed and tested, is before the crash and not after it. Types do not change; and an intercurrent luetic infection in the donor would mean little to the Service man losing a leg or an arm or 18 inches of gut. This is War Medicine, comparable to the War Surgery of which Dr. Moorhead spoke, and which he *practiced*.

*It has learned* that whole blood can be transported long distances, thirty or forty miles in a car, with practically no hemolysis or deterioration—if the stoppers are sterile rubber and not loosely fitting cotton-gauze.

*It has learned* that De Gowin *et al's* method of preserving whole blood is a good one, effective for 25 to 30 days, and thereafter it yields diluted plasma that should be ideal in burn cases. A modification, devised to suit war conditions, was to use the usual bleeding apparatus with 100 cc. of sodium citrate—2% of it was the type with 2 molecules of water, and 3.2% of it was the type with 5½ molecules of water (please look at the label of the bottle on your shelf!)—to draw 500 cc. of blood, preferably group O or Moss IV: universal donor. The remaining blood in the donor hose was massaged into the attached tube, tested for syphilis and blood group, and then immediately siphoned by closed system into a Cutter, Abbott or Baxter bottle, 1 L (really with a capacity of 1100 cc.), which contained 500 cc. of ice cold glucose solution, 5.4%. This then went into a refrigerator running at 4° C. There was no sense in complicating the picture by attaching 2 tubes to the blood receiver using up precious adhesive; one tube with a half inch of cotton in the bottom sufficed. The cotton preserved the point of the needle—and what *pilikia*\* "hooked" needles made during those days from December 8th to December 24th! The clotted blood yielded ample serum for lues serology, and some saline on the clot gave abundant cells for blood grouping. For attaching the blood sample test tube to the bleeding apparatus, size 64 rubber bands were found superior to adhesive plaster—and more economical.

### CONTAMINATION AND DECONTAMINATION

*It has learned* that plain infusion broth is a very poor indicator of contamination in plasma. A light inoculum of aerobes gives a low percentage of positives; and of anaerobes, practically none. *Brewer's medium* is far superior and was found most useful. It grows aerobes, microaerophiles and anaerobes very well. Attention was

\* *Pilikia*—Hawaiian for trouble, harm, difficulty, or the like.

previously called to this medium here in Hawaii in the October 1941 issue of the Proceedings of The Clinic, Honolulu, while a practical and economical method of its use was reported in the March 1941 issue of these same Proceedings. In brief, Brewer's medium is a clear liquid medium, made from pork rather than beef, and contains sodium thioglycollate to maintain anaerobiasis in the base of the tube, 0.05% agar to cut down convection currents, and .0002% of methylene blue as an indicator of oxygen saturation. It can be bought in dried powder form; it can be home-made if you have some sodium thioglycollate. To make 6 liters:

5 pounds ground lean pork.

6 liters of water; infuse in icebox over night, boil 5 minutes, cool, and siphon off underlying clear infusion.

Peptone, preferably "thio" or proteose #3 Difco	60 g.
Dextrose	60 g.
NaCl	30 g.
Sodium thioglycollate	6 g.

Dissolve, with heat if necessary, bring to 6 L.  
Set reaction to pH 7.4 or 7.6 (about 12 cc. of 10% NaOH required.) Filter through thick layer of cotton and then paper.

Add 3 grams of dissolved agar and methylene blue, 0.5% aqueous solution 2.4 cc. Dispense and autoclave as usual.

Tall narrow tubes (20 cc.) very slowly (weeks) get blue at the top, indicating oxygen penetration.

At The Clinic laboratory it is put in one ounce oval prescription bottles with bakelite molded screw cap. We bore a 3/16 inch hole in these caps, remove the inner paper liner and substitute one cut from heavy—truck weight—inner tube rubber. Having filled the bottle with 20 cc. of medium, the cap is screwed on tight and the remaining air exhausted with a fine hypo needle and suction from a filter pump, the screw cap covered with paper and rubber band, and the whole autoclaved. In culturing plasma, the rubber stopper of the plasma bottle is painted with dilute iodine in alcohol, and with a sterile 2 cc. syringe and 18 or 20 gauge needle 1 cc. of plasma is withdrawn. The paper cover of a culture bottle is removed and the needle of the syringe plunged through the rubber diaphragm, and the vacuum sucks the plasma into the bottle. The culture bottle is then "breathed" to atmospheric pressure by a sterile needle with attached 3 inches of rubber tube, stuffed with cotton, all sterile, of course. This "breather" is lightly flamed after each bottle is brought to atmospheric pressure. Two physicians, with the help of two technologists to uncover and

cover flasks and bottles, and equipped with only 17 syringes and needles which are boiled 5 minutes after use, can make a hundred cultures with ease in an hour.

*The Clinical Laboratory has learned* that in proportion of 1 cc. of plasma to 20 cc. of Brewer's medium, the merthiolate present, in 1:10,000 concentration, has practically no inhibitory effect; sterile cultures of plasma in Brewer's medium, subsequently lightly inoculated with pathogens and nonpathogens, give good growth.

*It has learned* that most contaminated plasma cultures give good visible growth in 24 to 48 hours, particularly with the anaerobic streptococcus, (probably of fecal origin) which was our *bête noir*—but that *it is not safe to make a final reading before the seventh day*. Some staph and diphtheroids (the latter giving a pale pink tinge to the medium) take 5 or 6 days to give visible growth. Incubation to the 14th day, as advocated by the Blood Transfusion Association, seems to us like painting the lily—and these are war times.

We at The Clinic worked with some 500 cultures, and it has been our experience that bacterioscopic examination of clear cultures never yielded positive results; however, some cloudy cultures were bacterioscopically negative—this holds good particularly for the homemade Brewer's medium. In other words, visual examination of the cultures is very trustworthy—only cloudy or doubtful cultures need, in practice, to be examined bacterioscopically.

*The Laboratory has learned* that if contaminated plasma (particularly if the contamination be the anaerobic streptococcus referred to) is ultimately filtered through 200 mesh wire gauze and then through a 2 x 1/2 inch Berkefeld candle, with positive pressure, the yield is about 200 cc. in 15 minutes, before the cylinder clogs. It has been suggested that if this plasma were put through a Sharples centrifuge—continuous clarification, like a milk separator—and then fed to a 10 x 2 inch Berkefeld candle, the yield would be 20 times the laboratory experiment; in other words, two liters per hour. In that fashion it would take only 250 hours to filter 500,000 cc. of contaminated plasma with one candle. It is to be hoped that the merthiolate in the contaminated plasma will have held that streptococcus static.

It has been found that if a flask of strep-contaminated plasma be supersaturated with sulfanilamide and returned to minus 15° C, nothing



happens and the strep stays cheerfully, malevolently alive. *But*, if another such strep-contaminated flask of plasma be treated with sulfanilamide to a concentration of only 31.3 mgm.%, and returned, not to the icebox, but to the 37° incubator, for 24 hours, all subsequent cultures are sterile, even if made in Brewer's medium to which has been added 7 mgm.% p-amino-benzoic acid to neutralize the effect of the sulfa compound. (See Jane-way, Chas. A., J.A.M.A., 116:941-942, March 8, 1941.) This plasma shows no veil thrombin clot nor granular precipitate in the first 24 hours—though there is some precipitate after 72 hours. If such plasma—sterile, sulfa-containing—be administered in 250 cc. amounts to a 150 pound man, blood content 5 L, the final concentration in him would be but 1.56 mgm.%. Don't ask the Clinical Laboratory, however, what has happened to the albumin-globulin ratio, prothrombin, strep. toxin, and autolysate content, in the interim! "But these are war times."

However, contaminated plasma—with the anaerobic strep (shades of Semmelweis!) treated with sulfa compounds to sterility—injected intravenously into a rabbit in doses comparable to clinical use, didn't even make the rabbit bat an eye or wiggle an ear.

#### POOLED BLOOD

*The Clinical Laboratory has learned* that whole blood may be pooled almost as safely as plasma. The theory that antagonistic isohemolysins would cause hemolysis did not find consistent verification. For hemolysis, the presence of complement is a requisite, but sodium citrate is anti-complementary, and was present in most of the bloods in excess. At The Clinic we pooled for a time, while the need for rapid turnover of bleeding receptacles was acute, four 600 cc. bloods in tall, narrow 2 L Cutter bottles. A little hemolysis resulted at first from the direct fall of blood and frothing; this was overcome by having the funnel deliver against the bottle wall. However, we did lose two such pools by very marked hemolysis, the cause of which remains a mystery; unfortunately, we did not culture these two batches. I am informed that the Central Bank also lost two such batches from the same cause.

#### MAKING PLASMA: FUTHER CONSIDERATIONS

*The Clinical Laboratory has learned* that while "99.44%" of its time and personnel were diverted to plasma production under war time conditions, it was still supposed to be almost 100% efficient

in urinalyses, blood cultures, blood chemistry, syphilis serology, histopathology, and the like.

Personally, I'd like to know who the hell ever wished the Plasma Bank off on the Clinical Laboratory, with little or no authority, less credit, and much blame; that plasma bank really belonged, not in the hands of an ophthalmologist, nor in the hands of a busy clinical pathologist, but in the hands of one of the very, very many Ph.D.'s, on the fringe of Clinical Medicine, who were specially trained for this type of work, and preferably one with a little inventive genius.

#### ADMINISTERING PLASMA

*The Clinical laboratory has learned* that the making of plasma is beset with many difficulties; there are, however, an almost equal number of difficulties in its administration, and many clinicians unfortunately seem to know as little of this matter as the proverbial hog knows of hip pockets. If plasma be made from blood in a minimum of time at a minimum temperature, preserved frozen, and melted at 37°, it is usually clear and may be administered as is. *Plasma made under any other conditions must be filtered*—first, to keep from plugging the needle, and second, to keep from plugging the recipient's pulmonary capillaries. It is silly to try to give Hawaii's plasma bank product direct from the bottle without filtration.

*The Clinical Laboratory found*, on December 7th, an inadequate number of infusion sets, plus standards, to give the plasma needed. The censor would probably not let me be more specific. However, within a very short period of time, when the gum tubing, observation tubes and 19 gauge needles—that came in place of the 16 gauge ordered for the "bleeders"—arrived, we improvised quite a large number of infusion sets. With an electric hot wire we cut the bottoms out of 1 L Cutter bottles, which could then still be suspended by their hoop and bail, the hoop also serving to anchor a single covering layer of close-mesh gauze. The neck of the bottle received a perforated rubber stopper, holding on the inside of the bottle a 100 mesh monel screen thimble, and on the outside, a glass tube which connected with the rubber hose that ran to the patient (preferably via a Kaufmann-Luer syringe). With this apparatus it is simple to begin a saline infusion on a patient in grave shock, switch to as much filtered plasma as seems needed, wind up with sterile saline—and move on to the next casualty without further thought of sterilizing anything but the needle.



On that memorable Sunday morning, there was an abundant supply of sterile saline in liter lots—God bless the man that had the good sense to get that material in advance.

#### PLASMA DOSAGE

*The Clinical Laboratory has learned* that when a battleship gets a direct hit and there are many burn casualties, plasma is the ideal therapy. That we knew before the blitz. Ravdin said that a burn case should have a quantity of plasma dictated by a conjunction of the patient's hematocrit reading and his plasma protein level—and I said once before, that if one had a big plasma bank and a good bookkeeper, one could follow Ravdin's tenets. Hematocrit readings, however, sew up a centrifuge that is terribly busy making plasma, and plasma protein specific gravity determinations are so dependent on the slow, *unhurried* method in which the pipette is withdrawn from the xylene-brombenzene tube. During, or just after an attack, one would be apt to distrust plasma protein determinations from the average clinicopathological laboratory. Be all that as it may, I should like to emphasize one fact—i.e., I have not yet seen a report in the medical literature of death attributable to an overdose of plasma.

It is suggested that the following might serve as a clinical rule of thumb method for grossly and rapidly determining plasma or serum proteins. Plasma (or serum, taken just as for a Wassermann) is diluted 1:50 in saline. 1 cc. of this dilution is placed in a 25 cc. flask or tube and 4 cc. of 3% sulfosalicylic acid is added rapidly and under constant conditions (as in making Kahn antigen.) The nephelometric density may then be read in a standardized photocolimeter, or compared visually with colloidal mastic standards previously made and calibrated.

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#### MAKING TYPHOID VACCINE

*The laboratory found that it could safely make a comparatively large quantity of typhoid vaccine if needed, in a rather short period of time, by adaption of the plasma culture method.* Flat-sided, one-quart, prescription bottles with molded screw caps were used for culture bottles. The caps were bored with a 3/16 inch hole and the paper inner liner replaced by a rubber washer of inner tube rubber. Enough agar was introduced to cover the flat side when the bottle was laid down. The screw caps were closed tightly,

the air exhausted with fine hypo needle and filter pump, the caps covered with heavy paper, and the media bottles autoclaved in the usual fashion and laid on their sides when sterile. When hardened, they were incubated to insure sterility, but moisture was conserved by the tight stopper.

Seed was grown from picked colonies of the Boxill strain of typhoid bacillus, on agar slants; these were carefully inspected and washed down with sterile saline. This seed suspension was transferred to a leveling bulb, to which was attached rubber tubing with a clamp and a glass observation tube on which was mounted an 18 or 20 gauge needle. For planting, an assistant carefully removed the paper cap from a culture bottle, the rubber inner liner was pierced by the needle, and enough seed was introduced to lightly cover the surface of the agar when the bottle was rocked. The culture bottle was then "breathed" to atmospheric pressure by the "air filter needle", the paper cap replaced, the bottle laid on its side for an hour or two, then placed erect in the incubator for 18 to 20 hours.

Reaping was accomplished by filling another in 1:10,000 concentration, the bulb being equipped leveling bulb with sterile saline plus merthiolate with base and needle as with the planting equipment. With this apparatus about 30 to 50 cc. of saline could be introduced through the rubber inner liner before positive pressure stopped the flow. The paper cap was then replaced. (Permanent paper caps were made by fitting the paper snugly in place with a rubber band, binding with scotch tape, and trimming off excess paper).

The bottles were then rather vigorously agitated until all the culture was washed down; this was greatly simplified by the abundant moisture present during incubation.

The first reaping took place into storage bottles similarly prepared with perforated molded cap, rubber inner liner and paper cover, autoclaved empty. The reaping hose was equipped with a needle at each end and an adaption of the Baxter filter drip with 100 mesh wire cloth in the liner.

The culture bottle with washed down culture was suspended upside down in a ring stand, the paper cap removed, and one needle plunged through the rubber liner. The other needle was similarly inserted in the collection bottle. Vacuum was created in the collection bottle by inserting an air filter needle attached to the vacuum line; thus the very concentrated vaccine was collected

in the storage bottle. This bottle was then wholly immersed in the 56° C bath for 60 minutes. Thereafter material for sterility control and toxicity and dilution standardization was removed with sterile syringe and needle, after iodizing the stopper.

The strength of the vaccine was standardized nephelometrically in a Klett-Sumerson colorimeter with a blue filter. Army vaccine was used as a standard, and the sample of vaccine was diluted until it gave a similar reading after calculation, the concentrate being diluted with 1:10,000 merthiolate in saline.

The Boxill strain is highly antigenic; rabbits used for toxicity control, which were subsequently given larger intravenous doses, yielded a very high titer diagnostic serum.

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### WAR GASES

Our laboratory has learned that it was woefully deficient in its knowledge of war gases and methods of their determination. Lewisite contains organic arsenic and it was our hope that the old Abelin reaction—a very simple one which will detect neoarsphenamine in a concentration of only 0.000185 Gm. per 10 cc. or mapharsen in a concentration of 0.00005 Gm. per 10 cc.—might be useful in detecting this gas in materials or body fluids; it is still, however, only a hope.

It is our understanding that lewisite contains arsenic in organic form but liberates it in the form of arsine -  $\text{AsH}_3$ . A simple test, such as the old Gutzeit test, might suffice for qualitative purposes. A drop of 50% silver nitrate is placed on a piece of filter paper and the moist spot held over a test tube containing some zinc, dilute sulphuric acid and the substance to be tested for arsenic. A plug of cotton is inserted near the top to protect the paper from being spattered by the effervescing solution. If arsenic is present, the spot becomes yellow and turns black when moistened with water (Holleman and Cooper.)

*The Clinical Laboratory has learned* that the internist needs only a stethoscope and his brain, the surgeon only a few tools and his judgment, but the laboratory needs thousands of bits of material—and material is hard to get in war times.

But the laboratory was happy to learn that it still was needed, in war as much as in peace.

E. A. FENNEL, M. D.

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### ORGANIZATION OF THE HAWAII SOCIETY OF CLINICAL PATHOLOGISTS

On Nov. 13, 1941, a meeting was held at the Mabel L. Smyth Memorial Building for the purpose of organizing a Society devoted to the promotion of the science and art of clinical pathology. Some 18 potentially interested physicians were invited to attend, of whom 10 were able to be present. It was unanimously agreed that the organization of such a society was desirable and a tentative constitution and by-laws were adopted. Dr. Carl F. Tessmer was elected president and Dr. I. L. Tilden secretary-treasurer.

The constitution provides that the membership of the Hawaii Society of Clinical Pathologists shall consist of two classes of individuals: *active* members, who are duly qualified medical graduates either limiting their work to the practise of clinical pathology or maintaining an active interest in this field, and *associate* members, who are not medical graduates but who devote their time to some branch of laboratory medicine. Activities envisioned for the Society include a regular meeting once a month at which prepared papers by the members will be presented, and smaller seminar meetings which will be devoted to the study of interesting and unusual neoplasms.

The first regular meeting was held on Nov. 27, 1941, with an attendance of approximately 75. Dr. E. A. Fennel, in an informal talk, sketched the development of pathology in Hawaii during his twenty years' residence in the Territory. He described conditions as they were when he first came to Honolulu—almost no, or at best very crude, laboratory facilities—a far cry from our present modern and well equipped laboratories. The program was closed by a joint paper entitled "A Consideration of Common Diarrheal Diseases of Bacterial Origin," presented by Dr. I. Kawasaki, Dr. A. S. Benenson and Dr. P. P. Green of the Department Laboratory at Tripler Hospital. The enthusiasm of those attending the first meeting speaks well for a long and active existence of the new Society.

I. L. TILDEN, M.D.



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# MEDICAL PREPAREDNESS

Dr. Moorhead, in carrying out a commission from the Office of Civilian Defense in Washington, acquainted himself with the activities of the Preparedness Committee and toured some of the aid stations immediately upon his arrival. His comments on this work were:

"I had the opportunity of going over some of the arrangements your society has made in respect to civilian casualty possibilities, at the request of the Office of Civilian Defense on the mainland, and when I go back and make my report I am going to say that your preparation here is much farther advanced than anything I know of on the mainland."

## WELA KA HAO!

RCA Radiogram Received:

*December 9, 1941, 1:20 PM*

WASHINGTON DC US GOVT 9 232P

HAWAII TERRITORIAL MEDICAL ASSOCIATION

OFFICE OF CIVILIAN DEFENSE REQUESTS YOU URGE ALL HOSPITALS TO ESTABLISH IMMEDIATELY EMERGENCY MEDICAL FIELD UNITS IN ACCORDANCE WITH PLANS OUTLINED IN MEDICAL DIVISION BULLETINS NUMBER ONE AND TWO AND DRILL WEEKLY. WHERE NECESSARY RESERVE FIELD UNITS SHOULD ALSO BE ORGANIZED WITH MEDICAL NURSING AND TRAINED VOLUNTEER PERSONNEL DERIVED FROM THE COMMUNITY URGE IMMEDIATE ACTION.

GEORGE BAEHR MD CHIEF  
MEDICAL OFFICER

Our reply, we hope, was adequate:

"Your wire of December 9 was duly received on the same day.

"For your information please be advised that our first emergency field unit was demonstrated with full equipment, ambulance, and personnel on Army Day, April 4, and that since that time 18 such units with a complement of 120 personnel each, have been trained and set up throughout the City of Honolulu.

"This was all done at the initiative of the Honolulu County Medical Society under the guidance and direction of Dr. Robert B. Faus, who has since been made a major in the Army. Since April a committee of medical men voted in by the Medical Society, with Dr. Harry L. Arnold, Sr., as chairman, has been devoting itself to the furtherance of these units and to the procurement of ambulances, equipment, etc.

"On the morning of December 7 these 18 units went into action within an hour, and the Preparedness Committee had 100 trucks rolling within an hour, some immediately, to go to the scene of combat at Hickam and Pearl Harbor for the transportation of casualties to the Army Hospital.

"Only two of our medical aid units had actual casualties, the details of which we would be glad to send you if you are interested, but all were in readiness to give full service.

"In addition to the above, some twenty civilian surgeons and doctors reported immediately at the Army Hospital upon their call for assistance at 9 a.m. Sunday, December 7, and most of them worked throughout the day, the last one reporting in at midnight. Other physicians were standing by to be sent whenever a call for need came in. This teamwork on the part of the physicians and surgeons was in part due to the organization in advance of surgical teams and hospital assignment of doctors as part of the preparedness program, under Dr. Arnold.

"Enclosed are some tear sheets from our medical journal which will give you some details regarding our preparedness program."

*\*H'ela ka hao: "Strike while the iron is hot"; literally, "hot the iron."*

## HONOLULU

The scoffers and the sceptics have had their comeuppance—"It couldn't happen here"—but it did. The wisdom of our military advisers in urging us to make the preparations we did, the adequacy and efficiency of the Plans and Training program of Dr. R. B. Faus, and the patient tireless work of the aid station doctors and unit members over the long, hot months have been thoroughly vindicated. The financial and material aid given by the Chamber of Commerce, the American Red Cross and, belatedly, by the City and County, have turned out to have been wise investments.

Within twenty minutes after the attack began, headquarters staff began the previously arranged program of telephone calls to alert the units and the emergency ambulance fleets. (It must be admitted that it would not have functioned so well on a week-day, however.) Within the first hour calls for 100 ambulances to Hickam Field were met promptly, and aid stations were receiving casualties and transferring them to hospitals. None of our rehearsals had run so smoothly or swiftly as did the real thing when it came.

One of the units, located at Lunalilo School, was actually hit by a Japanese bomb and the building set on fire, and the unit had to be immediately evacuated to another portion of the building where it continued to function and care for the casualties caused by the bomb.

By a remarkable coincidence, one of the series of lectures on traumatic surgery being given by

Dr. John J. Moorhead (by arrangement of the inspired committee on postgraduate study of the Honolulu County Medical Society) was set for 9:00 A.M. on Sunday December 7th and was just under way when the call came for the assigned surgical teams to report to Tripler General Hospital at Fort Shafter. The messenger entered the auditorium just as Dr. Moorhead had quoted "Therefore be ye also ready, for in such an hour as ye think not the Son of Man cometh" (Matt. 24-44). Well, we were ready and in less than 15 minutes the men, twenty civilian surgeons and physicians, Dr. Moorhead with them, arrived at Tripler to stay there all day, many of them till nearly midnight.

The very fact that Dr. Moorhead was here to organize the surgical work sheds definite credit upon our medical society. Our Post Graduate Committee had had the foresight to arrange, for its annual lecture course, a series of lectures on traumatic surgery and they selected for this the best man they could have had, I am sure, to give them. No rounder peg ever was fitted into a round hole.

A central dispatch station was set up to locate and dispatch doctors throughout the day and night in response to calls from the military or the public for medical aid.

The American Red Cross during the acute emergency fed units and ambulance fleets, which were on duty 24 hours a day, and furnished bedding for personnel who had to sleep near their jobs. This additional assistance rendered us has been of the highest usefulness. Too much praise cannot be given them.

In addition to supplies furnished to the units by the Army and the American Red Cross, the supply division of the Office of Civilian Defense under Dr. Thomas Mossman, City and County physician, functioned as a supply depot sending requisite medical and hospital supplies to units and hospitals.

The plasma bank, suggested in December 1940 by Dr. Eric Fennel and organized and established last fall by Drs. Pinkerton and Devereux under the Chamber of Commerce, had a good supply of plasma; but, of course, nothing adequate to meet such a demand. The stock on hand was at once distributed to naval, military and civilian hospitals and steps were taken immediately to expand the bank rapidly and enormously. Where-

MEMO TO: Dr. H. L. Arnold, Office of Civilian Defense.

FROM: Headquarters Hawaiian Department—January 19, 1942.

Request that the following statement, which has the approval of the Department Commander, be published in the Honolulu County Medical Journal:

"The Commanding General, Hawaiian Department, wishes to take this opportunity to thank the physicians and their assistants for the splendid aid and cooperation rendered on December 7 and the period following in the care of the wounded. All did a superior job."

For the Department Surgeon.

(Signed) SIDNEY POSNER  
Captain, Medical Corps.

as publicity and appeals had brought only a limited number of donors during the two months of the blood bank's operation, by noon of that fateful Sunday donors were thronging the hospitals and bleeding stations and continued to come for days. Doctors, volunteering their services, patiently did vein punctures hour after hour in three shifts for two weeks while laboratory technicians spent equally strenuous days and nights converting the blood into plasma. The Medical Corps of the army arranged for absolutely essential equipment or supplies to be brought in by plane when the local supply was exhausted. A supply of dried plasma is now being imported from the mainland to serve as a stable reserve in case of a sudden, urgent need for a larger quantity than could be supplied by the bank. The demand for plasma was quickly caught up with and

passed, and at present it is being made at "cruising speed" and is being stored against possible further needs. From the Commandant of the 14th Naval District came words of appreciation for the service thus rendered to our men of the fleet.

There is an old saying that the practice of psychiatry is largely the acquisition of a vocabulary. Well, the people who regard psychiatrists as impractical theorists should have seen what happened at the Territorial Hospital for the Insane the day of the attack. This group of men, all specialists in the treatment of mental diseases, were faced with the sudden necessity of performing tremendous amounts of every major surgery, and they responded to it nobly. They did not permit, perhaps neither would the censor permit, the publication of details of what was done over there; but it is safe to say that it was something for every psychiatrist and medical man in the country to be proud of. Someday, perhaps, the whole story may be told; but in the meantime Dr. Stevens and his staff deserve the hearty praise which they will some day receive.

On December 17th Dr. Perrin Long of Johns Hopkins Medical School and Dr. I. S. Ravdin of the University of Pennsylvania arrived by plane to survey the medical and surgical situation resulting from the attack. They spent many hectic days and nights interviewing the doctors, nurses and officials concerned and departed with their data. They were definitely profuse in their expression of praise for the work which the civil medical and nursing profession have rendered in the emergency.

Since the first tense days a considerable amount of shaking down and reorganization has taken place, naturally. Each aid station now has a skeleton stand-by crew of 16 paid attendants with volunteer members up to a total of 75 in reserve, ready to step in should the need arise. Our demonstration unit has been made a mobile unit, their supplies packed up ready to go wherever it might be needed. The personnel, meanwhile, will be used as reliefs for other units.

The surgical teams have been re-arranged by Drs. Strode and Judd and reassigned, and a complete staff set up for each hospital with a chief of staff in charge. Teams for the treatment of severe burns are also assigned, organized and equipped for their work under the direction of Dr. Halford. (See Honolulu Advertiser for details.)

Office of the Commandant  
FOURTEENTH NAVAL DISTRICT  
and  
Navy Yard, Pearl Harbor, Hawaii, U.S.A.

January 2, 1941

Dr. Harry L. Arnold  
Office of Civilian Defense  
Honolulu, Hawaii

My dear Doctor Arnold:

The district Medical Officer and the Commanding Officer, U.S. Naval Hospital, Pearl Harbor, inform me that the Honolulu blood and plasma bank collected, processed and supplied approximately 500 flasks of blood plasma to the Naval Hospital during and subsequent to the emergency of December 7, 1941. As the emergency developed the immediate availability of the plasma prevented much suffering and loss of life among naval personnel casualties.

The commandant wishes to convey to you his appreciation for this fine deed and for the excellent spirit of cooperation shown by all members of the blood bank in making available for naval needs, plasma which previously was designated for civilian defense requirements.

Please convey my thanks to Dr. F. J. Pinkerton and Dr. John Devereux for their splendid work in establishing and directing the work of this activity. I should like to have my thanks conveyed to all the people of Honolulu who so generously responded to the call for donors and thus made this work possible.

Very truly yours,

(Signed) C. C. Bloch  
Commandant, 14th Naval District  
Rear Admiral U.S. Navy



Dr. Stewart E. Doolittle has been designated as in charge of instruction of doctors, nurses and others connected with the hospitals in the manner of decontaminating and treating gas casualties. Each hospital will have a doctor assigned to this duty and under him will be teams of men who have been trained and equipped in the manner prescribed by the Chemical Warfare Service of the Army for the treatment of these casualties. In addition, a director of each aid station is receiving such training and he will be given a crew of highly trained men adequately equipped for this work. The Chemical Warfare Service of the Army has designated the aid stations of this organization within the city to be used as distribution centers for gas masks; their distribution began Jan. 21, and over 24,000 masks were delivered within the first 12 hours. As this is written 146,000 more masks are still in the possession of these stations ready to be issued as soon as the word is received. On December 18, in Mabel Smyth Memorial Auditorium, Colonel Unmacht of the Chemical Warfare Service, and Lieutenant Colonel Green of the Medical Corps of the army gave very instructive lectures on the management of gas casualties from both the lay and the medical points of view, following which the doctors and nurses who had not yet had gas mask training were given a short training period on the lawn *mauka*<sup>1</sup> of the building. A pamphlet on the medical management of gas casualties was prepared by Colonel Green; this has already been distributed to all the doctors of the island and will shortly be distributed much more widely as soon as additional copies are available. Dr. Payne, chairman of the local chapter of the American Chemical Society, has appointed Dr. Hance, chemist of the Hawaiian Sugar Planters Association, as chairman of the committee to train personnel in decontamination methods.

H. L. ARNOLD, M.D.

Director, Emergency Medical  
and Ambulance Service,  
Office of Civilian Defense

<sup>1</sup> *Mauka*: Hawaiian for "toward the mountains"; in Honolulu, approximately northeast.

The idea of storing blood plasma is not associated exclusively with warfare. In 1938 Dr. Nils P. Larsen, Medical Director of The Queen's Hospital, used placental blood as storage for transfusions. However, the amount of blood from this source appeared to be too small to justify the effort. In 1939 Dr. Robert B. Faus, in his capacity as City and County physician, enrolled a large number of prisoners as blood donors for ill or injured firemen, policemen and other city and county employees. The blood of each volunteer was typed and tested serologically, the donors receiving the nominal sum of \$10.00 for each transfusion. Dr. Faus' plan called for both blood transfusions and preparation and storage of plasma. An appeal to the City and County of Honolulu and later to the Public Health Committee of the Chamber of Commerce of Honolulu for funds to purchase equipment and a refrigerator failed, thus preventing the accomplishment of the latter aim, but the first phase of the program has been in continuous operation for over two years.

As war spread throughout Asia, Africa and Europe, the possible involvement of the United States became more and more a problem with which to reckon. Medical men everywhere, recognizing the new status of civilians in war time, urged the value of blood and blood plasma as an essential medicine for injuries involving severe shock or burns as well as loss of blood.

In Honolulu, Colonel Edgar A. King, Chief Surgeon, Hawaiian Department, United States Army, was urging upon community leaders and the medical profession the desirability of procuring and holding a supply of blood plasma for protection of civilians in the islands. To undertake such a project, leadership and funds were necessary. In December 1940, Dr. Eric A. Fennel had suggested to the Chairman of the Public Health Committee of the Chamber of Commerce that a blood and plasma bank be established and was asked to set forth his suggestions in letter form. This was done on December 26, 1940.

When this communication was read to the Public Health Committee, Dr. John W. Devereux, representing the Public Health Committee of the Junior Chamber of Commerce, expressed the interest of his organization in such a project and it was referred to the Junior Chamber of Commerce for consideration and preparation of plans.

## HONOLULU BLOOD AND PLASMA BANK

To Honolulu, a small American city, goes the distinction of operating the first plasma bank in this country under actual conditions of war.

In February 1941, an outline of the proposed blood and plasma bank was presented for final consideration to the Senior Chamber and a com-

mittee was appointed to supervise the inauguration and operation of the work. This committee included Dr. Forrest J. Pinkerton, chairman; Dr. John W. Devereux, Dr. Eric A. Fennel, Licut. Colonel Philip P. Green (representing Colonel King), Dr. M. F. Haralson, Territorial Commissioner of Health; Dr. Nils P. Larsen, Medical Director, The Queen's Hospital; and Dr. Thomas Mossman, City and County Physician. Dr. Louis Hirsch, in charge of the laboratory at The Queen's Hospital, was later appointed to represent Dr. Larsen.

Principal provisions of the plan were:

- (1) A central bank to be established at the City and County Emergency Hospital to draw blood and prepare plasma.
- (2) The Hawaii Chapter, American Red Cross, to be in charge of publicizing the project and securing donors.
- (3) The plasma supply and its production to be under the direction and control of the Public Health Committee of the Chamber of Commerce of Honolulu.
- (4) No blood or plasma to be offered for sale.
- (5) The central supply to consist of 100 flasks of plasma, 250 cc each.
- (6) Certain equipment to be purchased for hospitals on Oahu desiring to prepare plasma in addition to that of the central bank.

A budget of \$2,000, later increased to \$3,000, was appropriated to convert space at the City and County Emergency Hospital into a laboratory, to purchase equipment and to pay salaries. Dr. Devereux was employed as manager of the bank with Mrs. W. B. Herter supervising the laboratory. Eight hospitals agreed to participate in the program: Kapiolani Children's Hospital, Japanese Hospital, Kapiolani Maternity and Gynecological Hospital, The Queen's Hospital, St. Francis Hospital and Leahi Home,—all of Honolulu—and Ewa Plantation Hospital, Ewa, Oahu; and Territorial Hospital at Kaneohe, Oahu.

After four months of preparation and securing equipment from the mainland, the first blood was drawn on June 2, 1941. Response from the community was slow: when the bank opened only 30 donors volunteered, and these were chiefly members of the Junior Chamber of Commerce.

Thru newspaper and radio publicity, window displays and personal solicitation, a schedule of bleeding 9 to 12 donors a week was maintained. At the end of three months, when the appropriation and volunteer donors were exhausted, 96

men and women had given blood and 77 flasks of plasma were on hand.

At this time an additional appropriation of \$1,000 from the Public Health Fund of the Chamber of Commerce was made and a plan approved for doubling the goal to 200 flasks and speeding operations to care for about 30 donors a week. Under the new schedule, within five weeks 153 donors had given blood and the goal of securing enough blood for 200 flasks had been passed. Group solicitation was responsible for the increased number of donors.

It may be of interest to note that the cost of the last 138 flasks came to \$7.25 per 250 cc as compared to the cost of \$19.50 to \$27.50 per 250 cc flask for commercial plasma.

On November 13, 1941 the blood bank closed its doors, but several more weeks were required to draw and culture plasma, take inventory of equipment and plan for its disposition. On December 1, 1941, 203 flasks of plasma were placed in the cold storage warehouse at the Hawaiian Electric Company, and plans made to turn the central laboratory over to the City and County Emergency Hospital for an indefinite period. And so one more project was concluded, one more accomplishment was credited to the Honolulu merchants who contribute to the Public Health Fund—and, as fate would have it, none too soon.

One week later came that never-to-be-forgotten Sunday, December 7th, when our army and navy bases were attacked and an urgent appeal went out for plasma. 80 flasks of plasma were immediately distributed to The Queen's Hospital for civilian use; Tripler General Hospital received 75, and 45 were immediately dispatched to the Pearl Harbor Naval Hospital. Within six hours the total supply, the product of months of effort, was exhausted.

The doctors who attended the wounded that day tell of men who were carried in very evidently marked for death and they also tell how many of these men still live because of the life-giving plasma poured back into their veins—it worked miracles! "Thank God," they say, "for the plasma!"

This is the story of some 200 flasks of plasma, stored against an emergency that all Honolulu hoped never would come.

But there is an even more dramatic sequel to this story—the sequel beginning December 7, 1941—and it is the story of the response of all

Honolulu, shocked by its first realization of what war means.

A call for donors was broadcast over local radio stations and the response was overwhelming. From a previous maximum of 8 donors a day, 4 days a week, volunteers were now being bled at the rate of 50 an hour, 10 hours a day, 7 days a week. This continued over a period of 2 weeks. Every available doctor and nurse was enlisted to assist. 20 or 30 doctors gave freely and voluntarily from 3 to 5 hours daily to the bleeding of these donors, many of them coming direct from their aid stations where they had been on duty all night. Every doctor who did not have any other definite assignment was enlisted to help, and on one shift the same 10 doctors reported day after day. By 11 o'clock on December 7th the blood bank had taken over most of the operating room and all of the laboratory at The Queen's Hospital.

Men and women waited in line for hours. Soldiers stood their guns with fixed bayonets in the surgery hallway and rolled up their sleeves and helped; sailors gave their few precious hours of liberty to wait their turn. Mothers asked strangers to hold their small children and took their turns on the surgery tables. Civilian defense workers from Pearl Harbor, and workers from Red Hill, red eyed from long hours of welding, stopped by to donate before snatching a few hours rest. The whole crew and passengers from a Dutch ship came in a body to help their American allies, then hastened back to their boat to journey across a perilous sea.

A crew of husky iron workers in their oily work clothes came en masse; whole crews from dry docks and inter-island steamships; the dock workers and society folks waiting in line side by side to do their part. Sugar and pineapple plantation employees came direct from their work in the fields.

"I'm 22 years old" was the obvious lie from a girl who looked 14. "Two more" called a nurse, and a boy and girl, both blind, stepped forward. Even expectant mothers were waiting and dejectedly stepped out of line when the doctors announced their blood could not be taken.

The question most commonly asked was "How soon can I come again?"

All week more donors poured in than could be handled each day. With 12 teams working

constantly a maximum of 60 donors an hour was reached but could not be maintained. A speed of 50 an hour was averaged, however, from 7 o'clock in the morning until 5 o'clock in the evening, with the workers lunching when they could so that schedules could be maintained.

The original blood bank laboratory was placed on 24 hour duty, the personnel working in three eight hour shifts when necessary doing whatever was needed—sterilizing equipment, preparing sodium citrate, culturing plasma, and so on.

The laboratory at The Queen's Hospital typed the donors, ran serological tests on the blood, prepared plasma and dispensed blood and plasma. Units for preparing plasma and sterilizing equipment were instituted at the Experiment Stations of the Hawaiian Sugar Planters' Association and the Pineapple Producers' Cooperative Association. Equipment and technical assistance were borrowed from the University of Hawaii.

Leahi Home, Kapiolani Maternity and Gynecological Hospital, St. Francis Hospital, Kaula-keolani Children's Hospital and Japanese Hospital absorbed part of the load of plasma preparation with equipment provided by the Public Health Committee. The laboratory at The Clinic under the direction of Dr. Eric A. Fennel cooperated both in drawing blood and making plasma.

More than three weeks have passed since Oahu was attacked and those first terrifying days have passed. The hectic activity has subsided into more or less routine procedure.

With more than 10 times as much plasma on hand as was available December 7, the blood bank, now operating under the Office of Civilian Defense, will continue to function for an indefinite period. The central bank at The Queen's Hospital, with only 20 donors a day, has just passed the almost unbelievable mark of 5,000 donors. Future volunteers are being urged to go to their nearest hospital instead of only the Queen's Hospital.

This work will continue as long as the United States is at war and it is our earnest wish that in time to come the thousands of donors will remember the slogan of the blood bank—for peace time as well as war, "Be a blood donor and save a life."

FORREST J. PINKERTON, M.D., Director



## BLOOD PLASMA PREPARATION AND ADMINISTRATION

### A MANUAL FOR TECHNOLOGISTS

The Technical Advisory Committee to the Honolulu Blood and Plasma Bank, composed of Drs. Fennel, Witlin and Hirsch, has devised the following technique for the preparation of blood plasma. This has been simplified as much as possible and is offered as a guide. It may be modified by individual technicians to suit their own local conditions. The committee stresses above all the absolute necessity of the strictest aseptic precautions in every step. Only in this way can the percentage of contamination be kept at a satisfactorily low level.

### EQUIPMENT

All equipment used should be prepared as for intravenous use. *Bleeding Bottles.* Use any hard glass bottle, chemically clean, 500 cc. to 1,000 cc. capacity. Baxter bottles with standard rubber stoppers are recommended. A triple perforated rubber stopper for the closure should include one short glass tube, stuffed with non-absorbent cotton, as an air filter; one  $\frac{3}{8}$ " glass tube as an inlet for the blood and one  $\frac{3}{8}$ " glass tube covered with a red Army vaccine stopper for drawing off the plasma. To the blood inlet tube attach rubber tubing 4" long, at the end of which a 3" length of glass tubing (as an observation tube) is attached. To the open end of this glass tube connect an 8" piece of rubber tubing to which a glass needle adapter and a 16 gauge 2" needle has been attached.

Attach to the air filter tube 12 inches of rubber tubing. The open end may be a glass or plastic tip for mouth suction or an adapter for the application of a rubber bulb to obtain suction. Suction machines usually produce such a vacuum that the red cells may be hemolyzed as they hit the bottom of the bleeding bottle with the increased force.

*Accessories.* A test tube with a pledget of cotton at the bottom is used as a cover for the needle. A cotton stopper aseptically closes the needle and adapter within the test tube.

Two cork stoppered, chemically clean, and, preferably sterile, Wassermann tubes, one for serology, and the other containing 5 cc. of normal saline solution, for blood typing.

Wooden clothespins of the spring or clamp type; or pinch clamps.

### PREPARATION OF APPARATUS

(1) In the bleeding bottle are placed 100 cc. of a freshly prepared, filtered 2% sodium citrate with 2 molecules of water, ( $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7 \cdot 2\text{H}_2\text{O}$ ) or 100 cc. of a 3.2% solution of sodium citrate, with  $5\frac{1}{2}$  molecules of water, ( $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7 \cdot 5\frac{1}{2}\text{H}_2\text{O}$ ). Wrap all openings of the unit with heavy wrapping paper to produce an extra margin of safety. If desired, place these units in heavy muslin bag closed with rubberbands. Sterilize in an autoclave; at 15-pound pressure for 20 minutes, or at 12-pound pressure for 30 minutes. Raise and lower the pressure and temperature slowly to prevent cracking of the glass containers. Set stoppers loosely to prevent breakage from heat.

(2) Wash apparatus with soap and water, boil in 1:10,000 sodium hydroxide solution, rinse thoroughly with tap water, and finally rinse with distilled water.

The above method or one equally suitable is mandatory.

### METHOD OF DRAWING BLOOD

Employ as aseptic procedure as possible, such as a thoroughly clean room, and the wearing of caps, masks and sterile gowns by the operator.

A tourniquet is applied. The site of bleeding is prepared with tincture of iodine washed with alcohol, or by brisk rubbing with acetone, ether, or benzine followed by alcohol. The alcohol is allowed to evaporate, and the needle is inserted into the vein. Not over 500 cc. of blood is withdrawn, the bleeding bottle continually swirled by an aide. With the assistance of several aides, one doctor can bleed several donors simultaneously. Suction may be applied by mouth or by aspirating with the barometer bulb. The patient is instructed to alternately open and close the hand to a tight fist, slowly and uniformly.

When the bleeding is completed, the tourniquet is released and the 4" rubber tubing affixed to the bottle is kinked and clamped. The patient is instructed to open his hand and the needle is removed. A pad of sterile cotton, or preferably a pad of cotton wrapped in gauze, previously saturated with a 1:1000 mercuric bichloride solution, is applied to the site of the venipuncture and the patient's hand brought to the shoulder so as to form a compress at the site.

The needle is placed into the serology tube and the observation tube removed, thus allowing the blood in the tube attached to the needle to

run into the Wassermann tube. A drop of blood is milked or squeezed from this tube into another Wassermann tube containing normal saline for blood typing.

The rubber tubing attached to the air filter tube is removed. The bottle of citrated blood and the Wassermann tubes are properly labeled. The serology and blood typing tubes are sent to the laboratory. The blood bottle is placed into a 4° C. refrigerator and held until a negative serology report is obtained. One of the rapid flocculation tests such as the Kline exclusion test is recommended for speed. Doubtful tests can be checked by longer methods.

#### METHOD OF SEPARATION OF PLASMA FROM CELLS

Immediately after bleeding, if the time factor is urgent, centrifuge the blood in a sterile 250 cc. centrifuge bottle, preferably at a temperature of 2 to 4° C to obtain immediate separation of the plasma from the cellular elements.

Special apparatus may be improvised to perform this procedure under a closed system if time is not an important factor and if there is plenty of icebox space. In this case the citrated blood is placed in a refrigerator at a temperature of 2 to 4° C for five days to settle.

The plasma is now ready to be removed aseptically to a large sterile flask for pooling. The plasma from 50 bleedings is to be preferred. The plasma is withdrawn by removing the stopper from the third glass tube of the bleeding bottle and introducing a sterile glass pipette attached to the suction apparatus and pooling flasks. The pooling of a large number of bleedings is carried out to obviate the necessity of typing the plasma.

Typing is practiced in case the whole blood is used for transfusions. Typing of plasma is unnecessary because the agglutinin titer of pooled plasma is extremely low, and because no erythrocytes are present to be agglutinated by the potentially incompatible serum of the recipient.

#### STERILITY OF PLASMA

After pooling, 5 cc. of the pooled plasma is removed aseptically and tested for sterility by inoculating 25 cc. of sterile Thioglycollate medium (Brewer's). The inoculated medium is incubated for 7 days at 37.5° C. It is recommended that the medium be tubed to form a column about 7 cm. high.

To the pooled plasma, aqueous merthiolate solution 1:1000 is added aseptically so that the

final concentration of the merthiolate will be 1:10,000 in the plasma\* (add 25 cc. of 1:1000 merthiolate solution to every 225 cc. of the pooled plasma. The pooled plasma is maintained in the refrigerator at a temperature of 2 to 4° C.

#### RELEASE OF PLASMA

After 7 days' incubation, the cultures are examined microscopically by removing a loopful to a slide, fixing, and staining by Gram's method.

The sterile plasma is distributed into sterile, rubber stoppered, hard glass or pyrex bottles of 250 cc. capacity by aseptic technique. The bottles are filled to capacity to eliminate air space. One out of every ten bottles is tested for sterility as outlined above.

If the sterility tests are satisfactory and show the plasma to be devoid of bacterial contamination, it may then be released for parenteral administration or stored at 2 to 4° C.

#### RECOVERY OF CONTAMINATED PLASMA

- (a) Cotton filtration
- (b) Berkefeld filtration after preliminary high-speed centrifugalization
- (c) Sterility testing
- (d) Animal-inoculation testing for toxins and viruses.

If you have not the facilities or the technical assistance, please advise us. We may be able to help you through the Central Bank laboratory.

#### TECHNIQUE FOR ADMINISTRATION OF PLASMA TO PATIENT

Plasma is more viscid than whole blood or normal saline. It plugs the needle unless dilutions with normal saline are used and *it must be filtered before using!*

(1) Plasma is given with an ordinary intravenous set containing a 16 or 18 gauge needle to enter the vein; 3 to 4 feet of tubing with or without filter, and a 300 cc. burette or a modified tube to hold the solution.

(2) Pour into the burette the proper amount of *warm normal saline* (37° C) to make the right dilution, empty air bubbles and enter the vein. *Do not use Ringer's Lactate as diluting fluid.*

(3) Put funnel and filter in the burette, after removing sterile cover of paper on gauze.

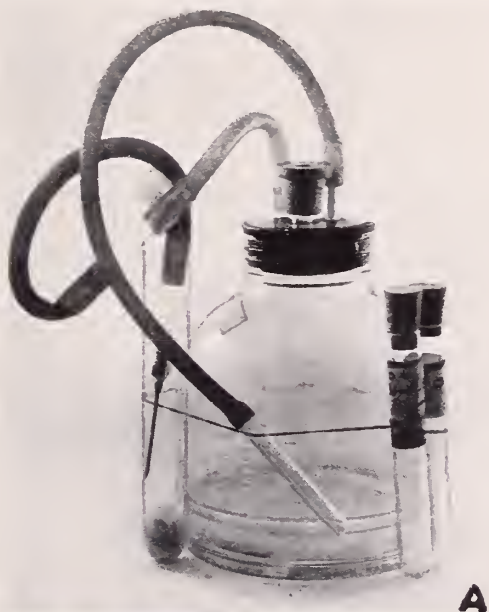
\*We believe merthiolate solution in 1:10,000 concentration does not act as a bactericide, but merely as a bacteriostatic agent.

(4) Pour the warmed plasma slowly into container through the gauze filter. Some sets will have stainless steel filters and in such cases no gauze covered funnel is required.

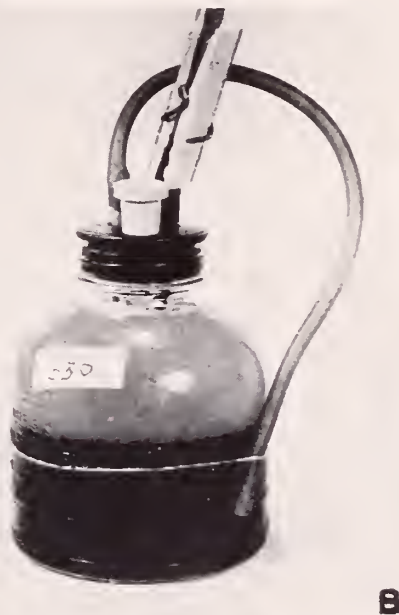
(5) Remember collapsed veins may become usable veins after circulation has been reestablished. Needles should be carefully inserted and

strapped into place to save repeated punctures.

(6) Venesection sets are available and are to be used if veins cannot otherwise be picked up. The intravenous cannulas are to be sutured into the skin with silk. Acquaint yourself with the technique of tying a blunt needle or cannula into a vein!



A



B



C



D

A. An empty unit complete ready for use.

B. Photograph A stripped of the accessories and ready for refrigeration. Note that two test tubes have been removed for serological study and blood typing.

C. Muslin bag for convenience of handling in storing the sterilized units until ready to be used at the bedside.

D. Two-hole unit which requires the introduction of a pipette for the drawing off of

plasma through one of the openings. One opening contains cotton to prevent a possible aspiration of debris if the operator uses the mouth suctioning technic. The other hole, on which the clothespin is attached oftentimes contains a remaining clot of blood through which the aspirating needle must be passed when drawing off the supernatant plasma. For that reason the three-hole stopper is more convenient by simply removing the army vaccine red stopper from the third tube inserting the pipette for drawing off the plasma.



# PHYSICIAN ASSIGNMENTS BY HOSPITALS DURING EMERGENCY

as set up by  
Emergency Medical and Ambulance Service, Office of Civilian Defense, Oahu.

	<i>Staff</i>		<i>Assigned</i>		<i>Burn Team</i>	<i>Gas Casualty Supervisor</i>
CHILDREN'S HOSPITAL			Alsup, F. Alsup, W. E. Hayes Hollmann	Howarth Ing, H. Y. Lee, R. H.	Fujiwara Yee, Sam	Marshall
CITY & COUNTY EMERGENCY HOSPITAL	Chun, R. Katsuki, D. Luke, L. Mossman Tyau Yap, R.		Cooper, J. Culpepper Kometani	Chun, R. Yap, R.		
JAPANESE HOSPITAL	Akita, Matsuyoshi Takenaka		Bowles Batten Katsuki, S. Kohatsu Kuninobu Nishijima Ogawa	Schnack Straub Takahashi Uchida Uchiyama Yamane	Sakimoto Uyeno	Okazaki,
KAMEHAMEHA HOSPITAL	Irwin, Fred		Hill Holmes Irwin, P.	Mitchell Schnack Sato, Zen	Black	Gordon
KAPIOLANI HOSPITAL			Milnor Putman	Schattenburg	Phillips	
LEAHI HOME	Childs Leslie Nojima	Perlstein Radner Walker			Childs	Radner
QUEEN'S HOSPITAL	Bailey Buzaid Casey Hartwell	Hirsch Ito Sexton Slaten	Judd Chang, W. K. Hosoi Inouye Kaneshiro	Lam, F. Ohta Sia Strode Yamamoto	Bell Childs, L. Doolittle Hamre Hume Molyneux	Hartwell
SHRINERS' HOSPITAL			Craig Farrell Yamashiro, M.	Yamashiro, Yamauchi	Chock Pang, H. Q.	Pang, H. Q.
ST. FRANCIS HOSPITAL	Wipperman		Gaspar Benz Ing, E. Kawano Kim Li, M. H. Moffat	Morong Ohtani Schnack Seto Van Poole Wynn	Wipperman Richert	Austin
ST. LOUIS			Brown Hodgins McVeagh Holmes	Osorio Smith Winter	Burgess Cushnie	Gotshalk
TERRITORIAL HOSPITAL	Stephens, E. Cooper, H. B. Kepner Natsui Ozawa					
TRIPLER HOSPITAL			Halford			
MOBILE SURGICAL TEAM			Chung, M. F. Cloward	Pang, L. Q. Spencer		
Blood Bank			Devereux. Fennel	Pinkerton Tilden		

## KAUAI

At the outbreak of the war Kauai was half-heartedly organized as to first aid emergency units. However, immediately after the declaration of war, the doctors and nurses became active and today Kauai has well organized, functioning units, able to take care of the medical needs in case of large numbers of casualties.

Dr. V. A. Harl was selected as medical coordinator for Kauai, Dr. A. Webster Boyden in charge of personnel, Dr. J. M. Kuhns for Medical Intelligence, Dr. Marvin A. Brennecke as Supply Officer, and Dr. S. R. Wallis for Plans and Training. Miss Mabel Wilcox is coordinator of nursing service and has been working in close cooperation with the doctors in organizing and nursing work and coordinating it with the medical set-up.

There are first aid emergency units at:

Kekaha.....	Dr. Kenneth Amlin
Eleele.....	Dr. David Betsui
Koloa.....	Dr. A. H. Waterhouse
Lihue.....	Dr. Y. P. Chang
Kapaa.....	Dr. Isami Umaki
Kilauea.....	Dr. V. A. Harl

Dr. Kenneth Amlin has been assigned to Waimea Hospital, Dr. Honl to Eleele Hospital, Dr. Brennecke to Koloa Hospital and Dr. V. A. Harl to Kilauea Hospital. All other available doctors will be used at the Wilcox Memorial Hospital in case of emergency.

At the outset of the war Dr. Marvin A. Brennecke, in charge of supplies, immediately "froze" all medical supplies on the Island and set up a medical supply depot at the Lihue Grammar School, which has been functioning since this time and will continue to function until the emergency is over.

All the first aid stations have been supplied and equipped through this central medical supply depot; since its organization by Dr. Brennecke it has been operated by Mrs. Marvin A. Brennecke, R. N., who will now continue as supply officer, relieving Dr. Brennecke for professional duties.

Dr. J. M. Kuhns, medical intelligence officer, has set up an organization which can at any moment give him an exact picture of the medical requirements of every section of the Island, enabling him to give medical aid to those areas needing it, using medical personnel and supplies from the areas not affected.

The nurses are splendidly organized under the supervision of Miss Mabel Wilcox. The nurses active at the present time have all been assigned to duties in case of a disaster, and those nurses who are inactive have been given refresher courses and have been assigned to duties in the first aid stations, in the hospital, or wherever they are best suited. The nurses have had charge of training the nurse aides for the first aid units.

The Dental Association is cooperating fully with the Medical Society. A dentist is second in command at every first aid unit, and the dentists have played a very important part in organizing and equipping the ambulances which are assigned to each first aid unit. The dentists are also spending a great deal of time in training the medical aid men.

The securing of blood plasma is playing a large part in Kauai's medical preparedness. The laboratory, under the supervision of Dr. A. M. Ecklund, was preparing between 1000 and 2000 cc. of plasma a week until he was called into the Navy. Since that time, the work is being continued by Mrs. Ecklund.

SAM R. WALLIS, M.D.

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## HAWAII:

As soon as the reports of the attack on Pearl Harbor were confirmed, our physicians were called to their posts and a continuous alert has been maintained since. The Hilo aid station was immediately mobilized and was ready for any demands. The personnel of this station were on duty continuously for five days and frequent practise sessions have since been carried out. The medical preparedness committee had meetings on the 7th and 8th and lent its advice and counsel to the various medical units that were standing by.

Forty-eight hours after the attack on Oahu we first heard of the need for blood. Within a few hours we had 25,000 cc. of blood and plasma ready for shipping and 24 hours later an equal amount. The first batch was sent for the following day but then we were told that the other was not required. If we had been asked or had the means of transportation we could have had a large amount of blood and plasma en route to Oahu soon after the first attack and when it was most needed. We have been active lately in building up a bank of plasma that should serve

if another call is made for it. Difficulties are being encountered in getting donors but this problem must and will be solved. Dr. C. B. Brown and E. Tompkins compose the sub-committee in charge of this work.

The Preparedness Committee has now received from the eight medical aid districts outside of Hilo, complete plans of their hospital and aid station set-ups. The composite picture indicates that we have laid our groundwork well and should soon be ready for anything that may happen. We have found that the local vocational school is a very valuable community project. Upon general ideas being given to them they have within a few hours delivered to us Thomas splints and stretchers worthy of the best craftsmen and at a cost surprisingly low. Large quantities of these are being made and distributed in every district.

For some time ward maids have been in training by the N.Y.A. in connection with the larger hospitals and several of the smaller hospitals have given one or more classes of such young girls intensive training in the hospital wards so that valuable assistance will be at hand if it is needed.

H. M. PATTERSON, M.D.

#### MAUI:

Dr. McArthur succeeded Dr. Burden as director of the medical department of the Major Disaster Council. Under this department, numerous committees have been formed concerning plasma bank, evacuation hospitals, first-aid units, collecting stations, and supply and control boards, which are yielding excellent results.

The attitude of our entire group, in which every member of the Medical Society has a part, is very optimistic about the entire program with but one exception—*finances*. The County Society feels that some financial solution to the problem should be forthcoming if we are to be influenced by the reports of the Swope-Haralson distributing agencies of federal funds allocated to medical preparedness. We do hope that the JOURNAL may offer some enlightenment on this all-important point.

Numerous volunteer workers, the Red Cross and Mr. R. B. Kniffen, executive superintendent of Paia Hospital, have all contributed loyally and graciously to the preparedness effort that is being made on Maui.

In summation, we are indeed pleased with our program and feel that our answer to potential problems will be as good as that of any community this size in the world. But, if our mother chapter in Honolulu will assist us in obtaining federal funds, we will guarantee a performance that is past being representative; actually commendable.

EMORY H. ANDERSON, M.D.



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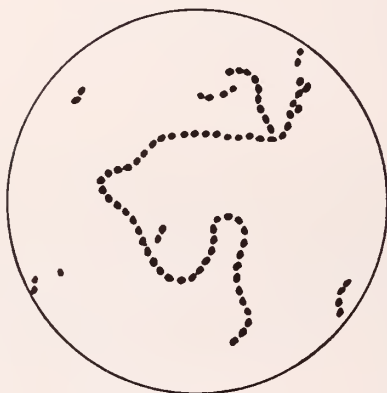
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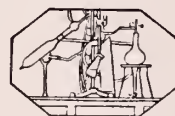


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# COUNTY SOCIETY REPORTS

## KAUAI COUNTY MEDICAL SOCIETY:

The regular monthly meeting of the Kauai County Medical Society was held at the Wilcox Hospital at 7:30 P.M., Nov. 12, 1941.

Communications were read relating to the Plantation Health Cooperative Plan. Discussion along general lines followed but no action taken.

Transfer card for Dr. Donald Chisholm reported as having been received from the Honolulu County Medical Society. Transfer accepted by unanimous vote.

Recently the secretary has been notified that transfer cards have been accepted by the Honolulu Society for Drs. Giles & Richert and one from the Hawaii County Society for Dr. Yoshimura.

The new Constitution & By Laws were read, discussed and adopted. Delegate. The Society approved a motion granting one way minimum first class steamship passage to the place of the annual meeting.

The Secretary-Treasurer was instructed to refund to Dr. Liu dues he had paid to us on acceptance of his transfer.

Motion by Dr. Amlin that President appoint a committee comprised of representatives from each of our hospitals presently authorized to care for indigent patients. Purpose would be to make a general study of our indigent problem and especially to establish a standard rate for all such Hospital Services, on a per diem basis. Considerable discussion followed. Motion was lost.

Because of the meeting having been long, Dr. Chang's paper was deferred for one month.

Meeting adjourned.

WEBSTER BOYDEN, M.D., reporting

## MAUI COUNTY MEDICAL SOCIETY

Since November, 1941, no regular meetings of the Maui County Medical Society have been held. In their place, combined meetings with military and civilian defense authorities have taken place each week. Within the near future, a regular

society meeting will be called for election of officers.

Since the last minutes have been filed with your office, Dr. Hawley H. Seiler of Paia, Maui and Dr. William B. Patterson of Puunene, Maui have been elected to membership.

Drs. Burden, Murray, Fleming, and Cowan have been called to active duty with the United States Army but their precise locations have not been learned. Drs. K. Izumi and E. H. Anderson have both been notified that they too will be most likely called to active duty within the next few weeks. It is certainly the desire of the Society, and we believe, the hope of the community at large, that the armed service will see fit to station as many men of this group, as is possible, to local duty.

EMORY H. ANDERSON, M.D., reporting.

## HAWAII COUNTY MEDICAL SOCIETY:

The 201st monthly meeting of the Hawaii County Medical Society was held December 2nd, 1941, at the Hilo Memorial Hospital. There were 17 members and 3 guests present.

The important business of the evening consisted of instructing our Councillor, Dr. S. R. Brown, on the Society's wishes regarding (1) Plantation Medical Plan in which we had already gone on record so that no further action was necessary; (2) Territorial-wide Post-Graduate Policy. There was a discussion as to a \$10.00 assessment fee per member per year to defray the cost of this policy. A motion was made and passed that our Councillor be instructed that we are in favor of such a policy; (3) the Library Policy. The matter of \$2.00 assessment per member per year was discussed and it was thought that our Councillor knows that we are in a receptive mood for such a policy. It was thought that the Maui Medical Society's suggestion of a medical index on each island was a very worthy one and should receive further consideration.

The coming visit of Dr. Moorhead was discussed and a program and itinerary arranged.



The Censorship Committee submitted the application for membership to the Society of Dr. O. K. Tofukuji who was a transfer from the Maui Medical Society. The application was unanimously approved by the Society for membership.

The scientific paper for the evening was given by Dr. A. I. Shimamura on "Hypofunction of the Ovary." He presented a very able discussion on the embryology, histology and pathology causing the condition. Symptoms and signs were discussed by Dr. Shimamura, followed by a comprehensive discussion of treatment with several case reports demonstrating favorable and unfavorable outcomes. Meeting was adjourned at 9:30 P.M.

---

The 200th monthly meeting of the Hawaii County Medical Society was called to order at 7:45 p.m. at Hilo Memorial Hospital. There were 26 members and 3 guests present.

Dr. Carter reported a case of enchondroma of the middle finger of the right hand in a young man who had received a previous injury to this part. An amputation of the finger was done and to date the result has been very favorable. Dr. Carter also reported a case of suspected *B. coli* septicemia in a young Hawaiian woman. Widal and stool examinations were negative; but blood culture revealed a few colonies of the *B. coli* which led to the diagnosis. The patient was treated with sulfathiazole and made a very rapid and uneventful recovery.

The committee on forms of medical practice reported that there has been a new form of plan now offered which was presented the same day to a meeting of the plantation physicians. The committee did not wish to make any recommendations until the plantation physicians had approved or disapproved it. As few men, other than the plantation physicians, knew anything of the new plan, it was read. Briefly it is a plan underwritten by the H.M.S.A. and similar to the plan now operating in Honolulu. Dr. Patterson reported that the plantation physicians had passed a resolution in regard to this plan which he read and briefly gave their objections to the plan as offered at this time. The main feeling was that the plan was incomplete and would require a great deal more work to straighten out details. It was voted that the committee of the Society continue their work and act as liaison between the plantation physicians and the Society, keeping the Society better informed of developments. An amendment to this motion was added that the secretary write to the Territorial Medical Association requesting

them to keep us fully informed on all new developments so that we may be better informed when called upon to act. Motion and amendment were unanimously passed.

Dr. Arimizu reported regarding his study of venereal disease control in Hilo that the plan in operation in Honolulu is not adaptable to Hilo because the Board of Health refused to cooperate in enforcing control, since in so doing it would put its stamp of approval upon prostitution which is illegal. He explained that in Honolulu this is carried by the Palama Settlement, a disinterested party, and thus it does not become involved under the territorial or county laws. Captain Mayfield was asked to work with Dr. Arimizu to try to set up some workable plan for control in Hilo.

Dr. Keay read the minutes of two of their recent meetings of the Preparedness Committee which were placed on file.

Transfer of membership for Dr. Kaname Yoshimura was voted upon after having first passed the Board of Censors. The Society voted to accept Dr. Yoshimura into membership of the Hawaii County Medical Society. A transfer from Maui County was received on Dr. Tofukuji and an application for membership from Dr. Mitamura. These were referred to the Censorship Committee for their action.

EDMUND TOMPKINS, M.D., reporting

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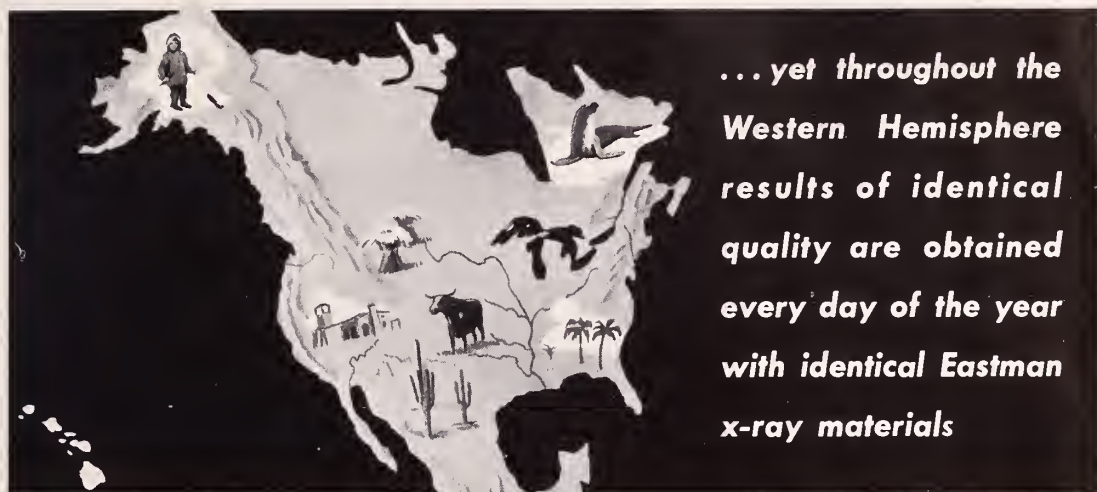
January 12, 1942

Recent Activities of the Hawaii County Medical Society.

The principal activity of the medical profession on the Island of Hawaii since November has been concerned with getting prepared for the war which came on December 7, 1941. Since then we have been methodically doing what we feel is essential to care for whatever the emergency may bring to this Island. Since April 1941 careful plans have been made to meet the emergency which we hoped would not come. In these plans every member of our Society has come forward willingly and has done well the tasks assigned to him. Never in his experience has this reporter seen a group of about forty physicians working in closer harmony with less evidence of friction than throughout this effort; and since December 7, the medical attitude has been "give me a job and I will do it."

One of our colleagues Dr. S. R. Brown, was in Honolulu for a council meeting when the stab in the back was made. He worked with Dr. Moorhead at Tripler Hospital for the first several

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days and upon his return a special meeting was called so that the experience gained by him could be shared with us. His outline of what was done and what is suggested for the future treatment of war casualties is being digested by all of us and should war casualties occur on this Island, we will have gained much by the disaster that befell Oahu.

Dr. L. L. Sexton visited Honolulu on the week-end of January 10th and attended meetings at which the future plans for the treatment of war casualties were discussed. He is to outline the recommendations made at a meeting of our society on Jan. 15th.

The January issue of the Journal was assigned to this Island and in spite of numerous handicaps four manuscripts and a editorial were in the mails on December 17th. Due to the fact that the Journal has been delayed and by this time material essential to us all has been prepared by those who handled casualties on Oahu we have gladly instructed the editor to defer publication of any or all of our papers until a later issue.

H. M. PATTERSON, M. D., reporting

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## HONOLULU COUNTY MEDICAL SOCIETY

Summary of Activities since October 24, 1941.

In addition to the regular meetings of the Board of Governors and the general assembly of the society, there have been many special meetings of the Board of Governors and of the various committees since the last report. A formal recapitulation of these meetings does not seem to be in order at this time but rather a few facts preserved for the permanent record, because December 7, 1941 marked a definite change in the activities of this Society and its members. When all the "hush-hush" is over perhaps the true story of December 7 will be written. In the meantime suffice it to say that every society member placed himself immediately available for the job assigned to him. The Board of Governors has gone on record that exploitation of individual names is not to be tolerated and that appetites should be curbed for personal publicity.

The fiscal year for the county society starts May 1st of each year and before the beginning of this fiscal year the Medical Preparedness Committee of the Honolulu County Medical Society was functioning with 20 first aid units in 20 different locations in this city actively in training.

In addition to these 20 first aid units, all adequately manned, there were medical and surgical teams set up by the society to act in the event of what was euphemistically called "any disaster." Furthermore the medical society had sponsored a championship benefit baseball game, the net proceeds of which were several thousand dollars intended to finance the equipment of first aid units.

When the kick-off came at 7:55 on the morning of December 7 the medical society was assembling for a lecture by Dr. John Moorhead who had been brought from New York at the expense of the Medical Society to give lectures on traumatic surgery. Over the radio the first calls were to assemble policemen and firemen off duty and medical society members to go to their first aid stations and also to the various hospitals. By name individual members of surgical teams were directed to report at once to Tripler General Hospital and most of the surgical teams worked throughout 24 hours. Among the men who volunteered was Dr. Moorhead who since that time has been on active duty as a member of the Medical Reserve Corps of the U. S. Army.

It cannot be emphasized too strongly that every member of the County Medical Society, regardless of racial extraction, nationality, sex or age responded immediately to the call of the authorities and continued on duty with an unselfish disregard for his own safety, health and economic status for the entire period of the emergency.

The 30 or more doctors who for weeks spent many hours each day in building up the civilian blood bank which was drawn upon by the armed forces cannot be too highly commended. Much of the work and many of the hours put in by members of the Honolulu County Medical Society was routine, unpleasant, tedious work. At the time of assignment these routine jobs might have turned out to be the most important ones. Actually there were no individual heroes.

Other organizations more experienced in obtaining publicity have obtained world-wide mention because of their activities whether they were or were not prepared. The Honolulu County Medical Society was prepared and took the job in its stride.

In addition to the emergency work there was the item of the examinations of some 4500 draftees which was carried out entirely by members of the Society early in January.

So much for the work since December 7th. For months prior to December 7th the Medical

Society had been on record asking for hospital expansion, and an adequate blood bank, and was sponsoring first aid stations and training first aid workers.

At the regular membership meeting November 7th a resolution was passed congratulating Dr. and Mrs. James T. Wayson on the occasion of Dr. Wayson's 50th year of practice of medicine. At a later meeting Dr. Moorhead was presented with a plaque commemorating his visit in Honolulu.

The gift of an electric refrigerator by Mrs.

James T. Wayson and a donation from Dr. Moorhead to the library fund were acknowledged.

Gasoline rationing which has been drastically reduced is still a moot point.

New members admitted to the Society: Dr. George F. Ellinger was accepted as a service member; Dr. Louis Hirsch and Dr. L. L. Buzaid as honorary members; Drs. Kenneth Fujii, Willis Hume, T. F. Fujiwara, Norman Sloan, Ted Allen Casey, G. Wipperman were accepted into regular membership.

A. W. DURYEA, M.D., reporting.



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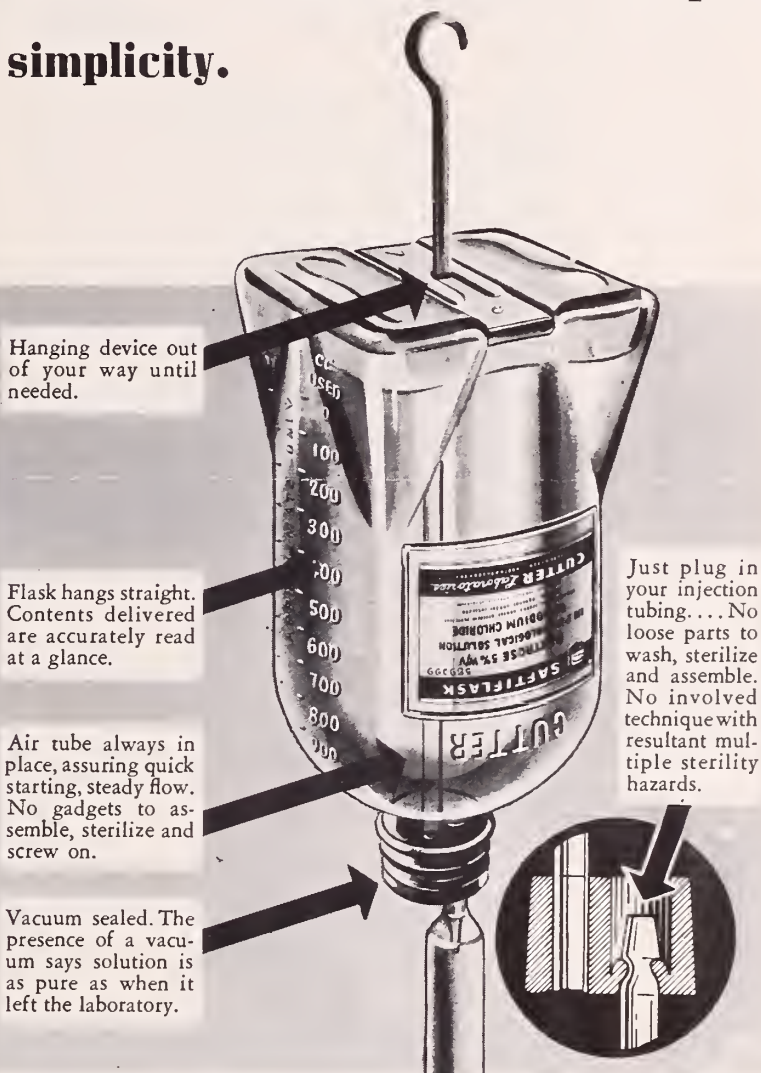
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# NOTES AND NEWS

## REPORT OF COUNCIL MEETING HAWAII TERRITORIAL MEDICAL ASSN.

December 4, 1941

The principal business of the meeting was to consider the plantation health plan. The councilors from all islands agreed that if a plan was to be adopted for plantation employees it should be uniform as to fee schedule and acceptable to the Territorial Association. The following resolution was adopted:

"WHEREAS, the plan as suggested (this refers to the first plan proposed by the HSPA) involves features which would impair the quality of medical care and cause a deterioration of professional standards in the Territory, Therefore  
BE IT RESOLVED that the Council of the Hawaii Territorial Medical Association hereby expresses its disapproval of this plan but expresses a willingness to stand ready to work out a plan which would not contain objectionable features."

It was voted that the Association proceed with a definite extension of the H.M.S.A. plan to the other islands and that a representative of this Council go before the Managers' meeting of the H.S.P.A. to explain the plan and what the Council hoped to do.

A territorial-wide post graduate policy was discussed. Decision was deferred and the matter is to be brought up at the annual meeting.

Extension of services of the Honolulu County Society's medical library to the outside islands and participation by the islands in the expenses of the library on the basis of yearly assessment was considered. No definite decision was arrived at. Action deferred until the annual meeting on the matter of an appropriation from the Territorial Association to the library as called for in the by-laws.

The Council approved the recommendation of the Psychiatric Committee, as follows:

"We respectfully recommend to the Council of the Hawaii Territorial Medical Association as a commendable project, the formation of a mental hygiene society for this community. We recommend that the Association lend its support and assistance to a general plan such as recommended by the National Committee for Mental Hygiene for State Societies. R. D. Kepner, M.D., Chairman."

R. O. BROWN, M.D., Secy.

## NEW MEMBERS

HAWLEY H. SEILER—Paia, Maui  
WM. B. PATTERSON—Puunene, Maui  
KANAME YOSHIMURA—Hawaii (by transfer)  
O. K. TOFUKUJI—Hawaii (transfer from Maui)  
DONALD CHISHOLM—Kauai (transfer from Honolulu)  
GEO. F. ELLINGER—service member  
K. KENNETH FUJII—Creighton, 1936.  
LOUIS HIRSCH—honorary member  
WILLIS F. HUME—Harvard, 1932.  
T. F. FUJIWARA—Tulane, 1936.  
NORMAN SLOAN—University of Pa., 1927.  
T. ALAN CASEY—University of Colorado, 1939.  
G. WIPPERMAN—(transfer)  
L. I. BUZAID—honorary member

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## HAWAII DOCTORS CALLED TO MILITARY DUTY

Edmond V. Avakian, Alfred J. Burden, Hong Chong Chang, Edwin K. Chung Hoon, Archie Chun-Ming, Thomas W. Cowan H. M. Chandler, D. S. Depp, A. Ecklund, Robert B. Faus, James R. Fleming, Clarence E. Fronk, Isaac Kawasaki, Joseph F. C. Lau, Walter T. Macklin, R. J. Mansfield, R. J. Mermod, R. Millard, Douglas H. Murray, John W. McClellan, J. Palma, David L. Pang, Carl F. Tessmer, F. W. Thompson, Fook Hing Tong, C. W. Trexler, Arthur L. Vasconcellos, Arnold Wagner, G. E. Wall, R. West, Paul O. Wiig, Charles L. Wilbar, Paul Withington, B. O. Wade, James F. Wong.

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A kamaaina gathering of 300 physicians, their wives and their friends, honored DR. JAMES T. WAYSON and Mrs. Wayson on the occasion of their 50th anniversary in medical practice. The reception took place in the Mabel Smyth Building on Tuesday, November 10, 1941. Dr. Wayson came to Hawaii in November 1894. He joined the staff of the Kalihi receiving station in 1895. He served on the territorial health board and for seven years was city and county physician. He is now physician for the Board of Hospitals and Settlement. In his long career of public service, Dr. Wayson has made important contributions to the study, treatment and eradication of leprosy.

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DR. THOMAS F. FUJIWARA has opened offices at 22 S. Vineyard St.

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DR. W. FULTON HUME has recently joined the Medical Group specializing in surgery.

DR. HARRY ARNOLD, JR. who left Honolulu December 4th by Clipper was finally able to return through an order of the War Department authorizing the Army transport service to bring home any stranded Honolulu doctors. He arrived the middle of January. While on the mainland he took and passed the American Board of Dermatology and Syphilology examinations.

DR. ALFRED S. HARTWELL arrived the latter part of December to take up duties as medical resident at Queen's Hospital, coming from Massachusetts General Hospital.

DR. DOUGLAS MURRAY was ordered over from Maui into active service and is stationed at the Kaneohe Hospital.

DR. JAMES F. FLEMING of Paia, Maui has also been called to Honolulu on active duty and is stationed at the Japanese Hospital.

DR. ERNESTINE KANDEL HAMRE has been appointed by the Hawaii Chapter, American Red Cross as the physician member to its First Aid Committee.

DR. KEPNER's paper "Evaluation of Metrazol Therapy of the Psychoses" read before the Honolulu County Medical Society in August of last year (and abstracted in the initial issue of this Journal), appears in full in the December 3, 1941, issue of The Medical Record, Vol. 154, No. 11.

The Territorial Medical Board Examinations were held January 12-15 with the following doctors taking the boards: DR. F. WARSHAUER, DR. GEO. H. Y. CHING, DR. CLARENCE F. CHANG, DR. EDWIN P. K. KAM, DR. FRANCIS R. KANESHIRO and DR. S. INAMINE.

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#### A.M.A. MEETING

The Annual Meeting of the American Medical Association will be held at Atlantic City, N.J., June 8-12, 1942. Our delegate and alternate, appointed last year to serve for two years, are F. J. Pinkerton and Lyle G. Phillips, respectively.

The Hawaii County Society which was to have been responsible for this issue of the JOURNAL kindly permitted it to be devoted instead to the experiences gained and observations made on and after December 7th.

The March issue, therefore, will be assigned to the Hawaii County, the May issue to Maui and the July issue to Kauai—international affairs permitting.

#### PLANTATION HEALTH PLAN

No further progress has been made regarding the plantation health plan for employees earning over \$100. per month because of the outbreak of the war which immediately followed the Council meeting. Mr. Bowman of the H.M.S.A. has returned meanwhile and will work with the Physicians' Association on Oahu and with the H.S.P.A. in an attempt to formulate an acceptable plan. The outside islands will be kept posted as to progress made.

#### LEPROSY IN HAWAII

Owing to Dr. Chung Hoon's call to active duty, the column entitled "Leprosy in Hawaii" does not appear in this issue. We hope to be able to resume it soon under either his authorship or someone's else.

#### IN MEMORIAM

GEORGE CLINTON POTTER, long time resident of Hawaii and for 26 years superintendent of the Queen's hospital, from which position he retired five years ago to make his home on Maui, died on January 26, 1942 in Queen's Hospital. He had been ill for several weeks.

Mr. Potter was born in Oakland, California, August 30, 1862, and came to Hawaii in 1880.



# LIBRARY NOTES

The Medical Library of the Honolulu County Medical Society is undergoing complete reclassification. The Dewey decimal system, widely used by general libraries, has long been considered unsuited for specialized material to be found in a medical library. Instead, the medical classification originated by the Boston Medical Library, and later adopted as a standard by the American Medical Library Association, is being used.

Each book in our collection is being given careful consideration to determine whether it is suitable for our library. Many old and useless books are being weeded out in the process, while on the other hand many rare and valuable books have been discovered. These are being placed in a special rare and historic book collection and articles on them will appear from time to time in this column.

All books are being given a fresh coat of shellac, mended where necessary, and sprayed against silver fish and termites.

A fine collection of nursing books was recently purchased by the Nurses' Association and is now classified and housed in its own alcove ready for circulation.

Books to be replaced by later editions or found to be unsuited to the needs of the Library, will be offered free to doctors interested in acquiring them for their private collection. Some may be of historic interest to the men specializing in one field of medicine.

Present activities should be completed within six months at which time our Library will be ready for long term planning to make it an adequate reference library and secure the great number of current publications necessary to keep the physicians of Hawaii abreast of the rapid advancement of all medicine.

Much of the above progress has been made possible through the planning of Mrs. Shanahan, a trained librarian, who, together with Dr. Shanahan, Asst. Psychiatrist at the Mental Health Clinic, have given many evenings to appraising and sorting our collection.

The committee welcomes any suggestions for book purchase, donations of recent titles, back numbers of journals, or ideas for improving the service.

A. W. DURYEA, M. D.  
Chairman Library Committee

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## LIBRARY GIFTS

The committee wishes to thank Dr. Ralph Cloward for his gift of books entitled *CLINICAL EXAMINATION OF NERVOUS SYSTEM* by Monrad-Krohn and *INTRACRANIAL TUMORS* by Bailey.

Dr. M. A. Blankenhorn presented the library with a three volume set of *MODERN MEDICAL THERAPY IN GENERAL PRACTICE*, edited by David Preswick Barr. Volume I contains General Therapy—methods used in therapy; Volume II contains General Diseases—infectious diseases, diseases of the nervous system, and Volume III contains Diseases of the Digestive System, diseases of other organs and systems.

Dr. Ernestine Kandel Hamre donated the two volumes of Dr. Fred L. Adair's *OBSTETRICS AND GYNECOLOGY*.

Dr. Max Cutler sent the library a copy of *CANCER, ITS DIAGNOSIS AND TREATMENT*, written by himself and Dr. Buschke.

Dr. John J. Moorhead on the eve of his departure made a generous donation to the Library Fund for the purchase of new books.

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The Territorial Nurses' Association recently purchased some 60 books for the nurses' section of the library. Some of these may be of interest to the doctors, viz:

Diagnosis and Treatment of Skin Diseases—Swartz  
Newer Knowledge of Nutrition—McCollum  
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# HAWAII MEDICAL JOURNAL

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MAY 28 1942

## ISLAND OF HAWAII ISSUE

EXANTHEM SUBITUM (ROSEOLA INFANTUM)

TERUO YOSHINA, M. D.

•

DYSCHONDROPLASIA  
(OLLIER'S DISEASE)

R. T. EKLUND, M. D.

•

WAR WOUNDS OF EXTREMITIES  
INVOLVING BONE

LT. J. D. MACPHERSON, M. C., U. S. N. R.

•

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PROGRESS REPORTS

ANNUAL MEETING, JUNE 6 AND 7, 1942, HONOLULU



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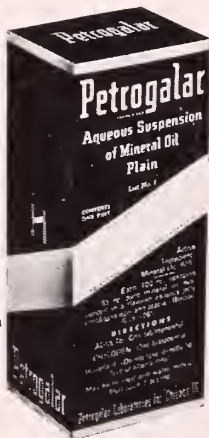
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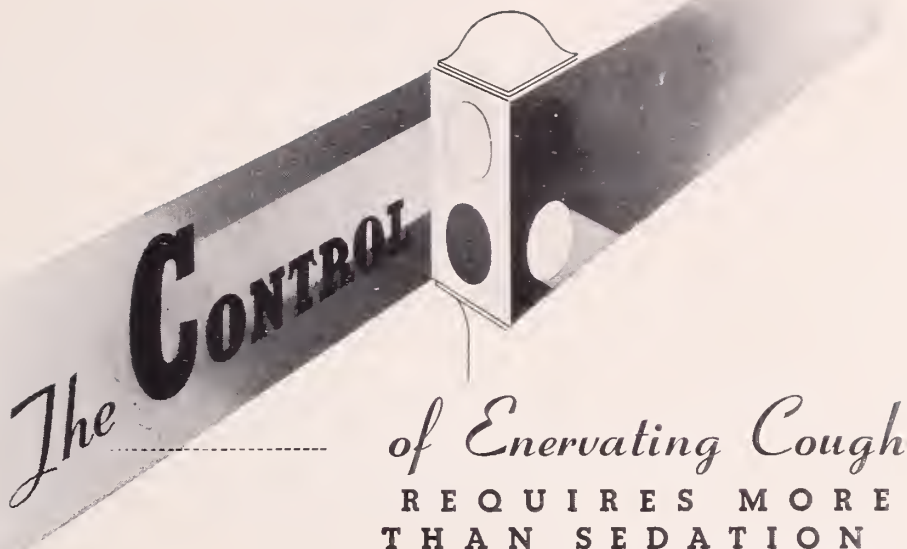
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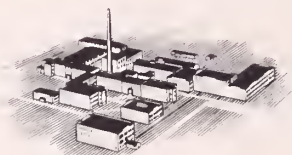
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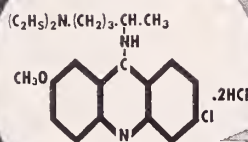
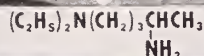
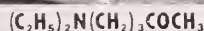
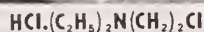
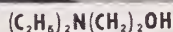
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# Exanthem Subitum (Roseola Infantum)

## A REVIEW OF THE LITERATURE AND REPORT OF EIGHTY CASES

TERUO YOSHINA, M. D.  
Hilo, Hawaii

Probably the most common perennial exanthematous disease of infants and children under two years of age in Hawaii is exanthem subitum (roseola infantum).

This disease was first described by Zahorsky<sup>1</sup> in 1913 as a clinical entity under the name of roseola infantum. In 1921 Veeder and Hempelmann<sup>2</sup> gave it the name of exanthem subitum and described the characteristic blood findings.

The most constant features of the disease are irritability and abrupt onset of prodromal fever which lasts for three or four days. The fever drops either by crisis or lysis and is followed by an eruption which fades in twenty-four to forty-eight hours. It is occasionally ushered in by convulsions. Other symptoms such as mild coryza, red throat, diarrhea and vomiting may be present. The blood count usually shows a decrease in the polymorphonuclear leukocytes and relative lymphocytosis. This illness is frequently confused with other exanthematous diseases of childhood or eruptions due to other causes and hence it is of diagnostic importance. Complications are rare.

This is a review of 80 cases of exanthem subitum which were observed in private practice in Hilo during the past five years. 48 cases were observed before the eruption and the remaining 32 after the appearance of rash.

As to racial distribution, there were 71 Japanese, 4 part-Hawaiians, 3 Caucasians, 1 Chinese and 1 Filipino.

A textbook of pediatrics,<sup>3</sup> and most reports, state that exanthem subitum occurs primarily in children under 2½ to 3 years of age. Only a few reports in older children are available, and

Cutts,<sup>4</sup> in 1938, reported a case occurring in an adult. The youngest patient was seven weeks old and the oldest was twenty-nine months of age in this series of cases. Infants and small children between five and fourteen months were most susceptible.

Table 1. Age Distribution of 80 Cases of Exanthem Subitum observed in Hilo.

AGE (MONTHS)	NUMBER OF CASES	AGE (MONTHS)	NUMBER OF CASES
1	0	16	1
2	2	17	3
3	2	18	0
4	2	19	2
5	5	20	0
6	9	21	2
7	13	22	0
8	2	23	1
9	6	24	0
10	10	25	0
11	3	26	0
12	7	27	0
13	4	28	0
14	4	29	1
15	1	30	0

Boys were affected more than twice as often as the girls, 54 to 26 respectively, or a ratio of 2 to 1. One observer<sup>5</sup> found a ratio of 3 to 2 in favor of boys while another<sup>6</sup> reported an equal distribution between the sexes.

There does not appear to be any seasonal incidence of this disease in Hawaii (Table 2). Others have reported that it was more prevalent during the fall or early spring<sup>6, 7</sup>. Since this disease is not reportable, its prevalence cannot be ascertained accurately. Undoubtedly, most cases are diagnosed as German measles or measles, or not at all.



Table 2. Monthly distribution of *Exanthem subitum* cases observed in Hilo during, 1938, 1939, 1940, 1941 and number of influenza cases reported to the Hilo Board of Health office from the city of Hilo during 1940.

	EXANTHEM SUBITUM 1938	EXANTHEM SUBITUM 1939	EXANTHEM SUBITUM 1940	EXANTHEM SUBITUM 1941	Influenza Cases Reported 1940 †
January	1	1	2	3	0
February	1	1	3	0	0
March	0	1	2	4	0
April	0	0	1	5	0
May	1	0	0	4	1
June	1	0	0	2	0
July	0	0	5	5	0
August	0	1	3	4	0
September	0	2	1	6	1
October	1	1	1	4	235
November	0	0	3	3	171
December	2	0	3	*	12

† These data were furnished by Mr. B. J. McMorro, Chief Administrative Health Officer, Island of Hawaii

Figures for December 1941 are not included.

In many cases there were very few symptoms and signs except fever and irritability. The fact that thirty-two cases were brought in after the eruption appeared substantiates this fact. In most cases parents attributed the illness to "teething" until the rash appeared. Most authors stress the point that in spite of high fever there is a dearth of symptoms and signs to account for the illness and the child does not seem ill. The fever is variable; the highest in this series was 106.8 degree F. rectally. Lucas<sup>8</sup> states that there are neither gastrointestinal symptoms such as vomiting and diarrhea, nor respiratory symptoms, signs of coryza, sore throat or cough. The eleventh edition of Holt's "Diseases of Infancy and Childhood" (1940) mentions that catarrhal symptoms are usually absent. Dickey, in 1936, is the first, to my knowledge, to have stated that numerous other symptoms may be present and the findings in this series are in agreement with his observations and those of Barenberg and Greenspan. Unless this fact is kept in mind the diagnosis of exanthem subitum will be missed on the first visit. Out of the 48 cases which were seen before the eruption, 37 were diagnosed and, in the remaining 11 cases, the diagnosis was not made on the first visit due to the following reasons: 6 of the 11 had an injected throat and 2 of these also had markedly injected buccal mucous membranes with minute red punctate spots where the Koplik's spots are usually found in measles; and 1 had follicular tonsillitis. 3 of these 11 had diarrhea as the chief complaint; one of the 3 had nasopharyngitis for

about a week besides the diarrhea, and another was an infant seven weeks of age in whom this disease was not suspected because of the age and the diarrhea. Only one of the 11 had no significant finding to explain the fever and irritability, and a blood examination done a few hours after the onset of the illness showed a total white cell count of 8,200 with 62 per cent polymorphonuclear leukocytes. These symptoms, signs, and the blood count were misleading. Analysis of the 80 cases showed the following symptoms and signs besides the fever, irritability and rash:

1. Convulsions at the onset of illness .....2 cases
2. Bulging anterior fontanel .....1 case
3. Injected throat .....30 cases  
6 of these had nasopharyngitis and  
2 were coughing.  
4 had follicular tonsillitis.  
Throat cultures in two were pure staphylococcus aureus and in another gram negative bacilli were found.  
6 of these 30 had markedly injected buccal mucous membranes, of these 5 had minute red punctate spots.  
One had aphthous stomatitis lesions and was coughing.
4. Constipation .....2 cases  
Erythrocyte sedimentation time in one was within normal limits.
5. Diarrhea .....8 cases
6. Diarrhea and vomiting .....1 case
7. Vomiting .....2 cases
8. Purulent otitis media .....1 case
9. Drowsy facial expression .....17 cases
10. Palpable postauricular and occipital glands .....35 cases

Veeder and Hempelmann in 1921 found characteristic leukopenia and relative lymphocytosis in their cases. Faber and Dickey in 1927 and Barenberg and Greenspan in 1939 reported that in their cases the relative lymphocytosis was more constant than the reduction in the total white cells. In this series 62 total white cell counts and 59 differential counts were done on 58 patients. The highest white cell count was 21,800 and the lowest 800 per cubic millimeter. There were 19 white cell counts of 7,000 or less while a count of over 7,000 occurred 43 times. Lymphocyte counts of less than 70 per cent were encountered 17 times, while those of over 70 per cent occurred 42 times. Most of the low lymphocyte counts occurred during the first two days of illness. Out of 11 cases in whom the blood was examined on the first day of illness, four, or 36 per cent, had less than 50 per cent lymphocytes, while only one patient out of the fifteen cases studied showed less than 50 per cent on the second day of illness. Only one had 18 per cent lymphocytes after the rash ap-

peared on the fourth day of illness. He had an infected ear canal and was afebrile. From the second day onward the lymphocytes were predominating (Table 3). Others<sup>6</sup> have reported

Table 3. 62 total white cell counts and 59 differential counts on 58 cases of exanthem subitum.

TYPE OF BLOOD COUNT	DAY OF ILLNESS WHEN BLOOD COUNT WAS DONE					
	1st	2nd	3rd	4th	5th	6th
Total white cell count below 7,000 per cu. mm.	2	4	5	5	3	0
Total white cell count above 7,000 per cu. mm.	9	12	7	8	6	1
Lymphocytes 0 to 40%	2	1	0	2	0	0
Lymphocytes 41 to 50%	2	0	0	0	0	0
Lymphocytes 51 to 60%	1	1	1	0	0	0
Lymphocytes 61 to 70%	1	4	0	2	0	0
Lymphocytes 71 to 80%	4	6	5	3	4	0
Lymphocytes 81 to 90%	1	2	5	5	3	0
Lymphocytes 91 to 100%	0	0	1	0	2	1

that in spite of other infection lymphocytosis is the rule. Since there is granulopenia and relative lymphocytosis, the chamber differential count of the white blood cells was used exclusively. A smear examination as a check on the chamber differential count showed that in this disease detailed smear examination is not necessary in establishing the diagnosis. That thirty-seven cases were diagnosed before the eruption with the aid of this method of blood examination is sufficient proof of the reliability of this method.

However, there are occasional cases with typical symptoms and signs and blood picture of exanthem subitum without rash at the end of the febrile period. There was one such case. A child was seen on the third day of illness with a fever of 101.5 F. On physical examination he appeared drowsy and only a slightly injected throat and moderately palpable occipital glands were found. White cell count was 10,400 with 80 per cent lymphocytes. Two days later he was afebrile but there was no eruption. Dickey recommends that the patient be observed at least forty-eight hours after the fall in temperature when this disease is suspected. Barenberg and Greenspan reported one such case and considered this an abortive or modified form of roseola infantum. Zahorsky suggests the name of "roseola sine eruptione".<sup>10</sup>

Most observers reported that the fever usually drops by crisis. However, an observation made in an institution where the temperature was recorded every four hours showed that the number of cases were equally divided between the two

groups where the fever dropped by crisis, and by lysis. In office practice this cannot be determined accurately, but in several cases on the last day of illness, patients who had low grade fever were brought in for the second time. In these cases the fever gradually dropped to normal within a few hours. These cases belonged to the group where the fever dropped by lysis.

In 61 cases the rash appeared on the fourth day of illness. None of the 80 children in this series were bothered by the rash and no local treatment was necessary. The rash was rose red to pink in color, and macular and maculopapular, not unlike the rash in measles, and was confined mostly to the trunk and the face and to a lesser extent to the extremities. Barenberg and Greenspan reported that in their series the average time of appearance of the rash was three and nine-tenths days after the onset of the illness. Dickey suggests that the rash, before its appearance to an unaided eye, may sometimes be seen under the ultraviolet light as long as twenty-four hours before the crisis. In office practice close vigilance cannot be made and reliance is placed on history, and the data may not be as accurate as in a study made in an institution. In one case, a girl 2½ months old, the rash appeared without apparent sign of illness. The total white cell count was 7,200 with 80 per cent lymphocytes. This was probably a mild case of the disease. In 10 cases eruption occurred on the third day; in 5 on the fifth day; in 2 on the sixth day; and in 1 on the seventh day of illness. Out of 5 in whom the rash appeared on the fifth day, 2 had nasopharyngitis and 1 had diarrhea. Of the 2 who had rash on the sixth day of illness, 1 had follicular tonsillitis with white cell count of 16,000 with 72 per cent lymphocytes while the other had concomitant purulent otitis media in whom myringotomy was done on the third day. The white cell count on the first visit on the third day was 15,000 with 74 per cent lymphocytes. In the child where the rash appeared on the seventh day of illness the total white cell count on the fourth day was 13,400 with 40 per cent lymphocytes. On the sixth day he was still feverish and the total white cell count was 18,600 with 92 per cent lymphocytes. Most of these cases with rash appearing beyond the fourth day of illness had either tonsillitis, nasopharyngitis, otitis media or diarrhea.

There were no complications in this series. Ikeda<sup>11</sup> reported in 1925 that 24 per cent of his 70 cases had a complicating otitis media. Barenberg and Greenspan had 3 cases of otitis media



in their series of 54 cases and in spite of purulent infection, as a result of otitis media there were typical lymphocytosis and leukopenia. There was only 1 case of otitis media in this series and as mentioned above myringotomy was performed on the third day and the rash appeared on the sixth day. The cases with convulsions or bulging anterior fontanel showed no sequelae. Convulsions were due chiefly to abrupt onset of fever. The spinal fluid findings in such cases have been negative in my experience.

Since more than one child of susceptible age is rarely present in a family at the same time, neither the infectiousness nor the incubation period of the disease can be studied from cases seen in office practice. Observations made in institutions show that it is moderately infectious<sup>12</sup> and place the incubation period as between five and fifteen days, with an average of ten days.

As far as pathology is concerned this disease is of slight importance compared to other exanthematous diseases, but the symptoms may be quite annoying. I agree with Stafford<sup>13</sup> that unless this disease is kept in mind it can cause much anxiety not only to the parents but to the attending physician as well. The diagnosis of exanthem subitum is not difficult even before the eruption. The patient is usually under two years of age and is quite irritable and upon examination there may be no positive findings to explain the cause of fever. Quite often injection of the throat, nasopharyngitis, tonsillitis, diarrhea, vomiting, drowsiness or palpable postauricular and occipital glands may be present. Occasionally minute red punctate spots may be present in the mouth which resemble the Koplik's spots of measles except in color. Quite often there is a history of exposure to cold atmosphere, such as having been taken for a ride, or to the beach. Blood examination will aid in the diagnosis in most cases even from the first day of illness. It is differentiated from measles by the normal temperature when the rash appears and the absence of lacrimation and marked coryza, and from German measles by the blood count and longer prodromal fever.

#### DISCUSSION

Most observers consider exanthem subitum as a disease entity with a specific cause of unknown etiology, although some authors feel that it is not a clinical entity but an atypical form of influenza with toxic rash<sup>14, 15</sup>. Barenberg and Greenspan reported that one of their exanthem subitum patients developed "grip" at a later date. In 1940,

during the epidemic of influenza in Hilo, no increase in the number of cases of exanthem subitum was observed (Table 2). This finding is in full agreement with that of Zahorsky, who states that during grip epidemics this exanthem is only occasionally encountered. It is my observation that when common colds are prevalent cases of exanthem subitum are seldom seen in the office.

Some maintain that this disease may be an expression of allergy toward some food substances or medicine. However, careful study of Barenberg and Greenspan in an institution and the report of Ryden<sup>16</sup> discount this theory. Zahorsky states that in this condition there is an absence of eosinophilia.

Certain features of the disease suggest that it may be an aberrant form of rubeola. 30 cases in this series had injected throat. Out of these, 6 had markedly injected buccal mucous membranes of whom 5 had minute red punctate spots where the Koplik's spots are usually present in measles. These spots were red instead of white as in measles. In 3 cases they were present only on the left side of the mouth and in 2 on both sides. In 3 cases they were present before the eruption and in 2 who were seen after the eruption, they were still present. These spots were not aphthous stomatitis lesions. 17 patients appeared drowsy, somewhat similar to the expression found in measles. These findings seem to corroborate the theory that it may be an aberrant form of rubeola. However, the review of 80 cases shows that there are no constant findings in the mouth and throat in exanthem subitum as in measles. This was also the observation of Jones.<sup>17</sup>

Although secondary infection is a possibility, the presence of upper respiratory infections is probably a coincidental infection rather than a part of the picture of exanthem subitum. Changing blood picture and eruption beyond the fourth day of illness favor this opinion. Occasionally the first blood count will show predominance of the polymorphonuclear cells and a second count a day or two later may show increase in lymphocytes. This reversal of blood picture seems to occur a few days before the eruption even in the presence of concomitant infection. There was only one case which failed to show this blood picture in spite of the rash on the fourth day with normal temperature.

Vomiting, diarrhea or constipation are commonly present in infants and young children in association with acute febrile disturbances and



many infections. In one child with bulging anterior fontanel there was no emesis while in others with vomiting other manifestations of cerebral disturbances were absent. Diarrhea was mild in all cases. Stools were loose to watery in consistency and yellow to green in color.

The enlargement of the postauricular and occipital lymph nodes is more than an incidental finding. There were 35 patients, or 44 per cent of the cases, with enlarged glands. In one child enlarged occipital glands with fever was the chief complaint. Many of the apparently normal infants and small children of Hawaii perspire quite profusely on the head and it was felt that this was one of the reasons for the frequency of the enlargement of the glands. However, in the child health conferences only about 15 per cent of the infants and small children have palpable postauricular and occipital glands, and these are in no way comparable in extent and degree to those encountered in exanthem subitum.

#### CONCLUSIONS

1. Exanthem subitum (roseola infantum) is the commonest perennial exanthematous disease in Hawaii in infants and small children under two years of age. It is most frequently observed between the ages of five and fourteen months.

2. Symptoms and signs other than fever and irritability may be present. These are probably due to the presence of concomitant infection.

3. The diagnosis of exanthem subitum is not difficult if this disease is kept in mind and blood examination is made whenever it is suspected. Chamber differential count is just as helpful as a smear examination. Granulopenia and lymphocytosis are more constant than leukopenia and they are present a few days before the eruption.

5. This disease as observed in Hawaii is similar to cases seen elsewhere.

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# Ward Rounds in a Sugar Plantation Hospital

## REPORTS OF FIVE CASES

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It was felt that an informal article presenting brief case histories of certain patients in a sugar plantation hospital would be of interest not only to Mainland physicians but also to such Honolulu physicians as have never visited one of these hospitals. Possibly, too, other plantation physicians may find some phase of one or more of these cases of sufficient interest to justify this presentation.

The cases selected for this report were all patients of the Olaa Hospital on December 1, 1941. It may be that in some of them insufficient laboratory work has been done: possibly plantation hospitals should place more emphasis on such procedures. The cases are all presented in summary, lengthy details being omitted. Without further apology, a brief trip through the wards of a plantation hospital will be made.

### CASE REPORTS

*Case 1.* Number 57, E.P., a 12 year old boy, was admitted Nov. 28, 1941, complaining of pain in the right side of the neck of thirty-six hours' duration. He also stated that his throat was sore.

Examination showed what appeared to be acute myositis of the right sternocleidomastoid muscle. The pharynx was slightly reddened; the temperature was 99F, pulse 100 per minute, respirations 20 per minute, and the urine normal. There was a leukocytosis of 13,400, with 70% polymorphonuclear leukocytes; the hemoglobin was 65% of normal, and the red count 3.57 million per cubic millimeter. Reflexes were generally hyperactive. There was limited motion in the right sternocleidomastoid muscle, the patient preferring to hold his head turned toward the left side.

The patient was given  $7\frac{1}{2}$  grains (0.5 grams) of sulfathiazole every eight hours: despite the negative cultures, it was thought he might have an early streptococic sore throat. Twenty-four hours after admission his temperature was 98.6F and his pulse 80; he felt much better. Forty-eight hours after admission he refused to eat, stating that he could not open his mouth well or chew food.

Examination at this time showed a moderate degree of tetany of the muscles of the jaw and neck. There was also some stiffness of the back.

(Though he had previously denied any nail wounds, our records showed that he had been treated for a nail puncture wound of the right sole two months before. At that time the wound was opened, iodine injected with

a needle to its depths, and 1500 units of tetanus antitoxin given.)

The patient then proceeded to develop the typical picture of tetanus, with spasm of muscles, particularly those of the jaw, neck, abdomen and spine. He was given various sedatives, especially nembutal in  $1\frac{1}{2}$  grain doses, without relief. Finally, on December 1, he was given by rectum 50 cc. of Barb-eth-oil, a mixture of ether, mineral oil, Neonol and ethyl barbituric acid which we have used extensively as an obstetrical analgesic. He was free of spasm for twenty-four hours, and slept well. This was repeated the following night.

The morning after the first dose of Barb-eth-oil the patient began to take liquids, and from then on showed steady improvement. He had been given a total of 40,000 units of tetanus antitoxin—one-half by vein, one-fourth intraspinally and one-fourth intramuscularly—upon the appearance of tetany of the jaw muscles. The spinal fluid cell count was six, and other tests on it were normal. One day later an additional 40,000 units was given by muscle and vein, and 4,000 units injected around the site of the old nail wound; the area of the wound itself was excised. The patient was discharged, well, on December 10.

This case is of interest because of the development of tetanus two months after the original wound was incurred, and because of the relief of spasm by the use of rectal Barb-eth-oil when other drugs seemed to fail.

*Case 2.* Number 719, K.N., a 26 year old Japanese housewife, was admitted November 27, 1941, because of fever, aches and pains all over the body, severe headache, loss of appetite, and marked prostration. Temperature was 101F. Nasal and pharyngeal mucous membranes were congested. The white count was 6,000 per cubic millimeter. There were no other significant findings. Five days later the patient was well, her temperature normal, and she was discharged.

This case is felt to be one of influenza. Since November 15th I have had about 200 such cases, and I definitely feel there is now a mild epidemic in the Territory.

This case is also presented because of her past history. She was well until the birth of her second child, in October 1939, when she began to have frequent dizzy spells, fatigue upon the slightest exertion, and complete inability to carry on her usual household duties. Her menses were regular and normal, her appetite excellent, and she had no pain. Her weight fell off from 100 to as low as 87 pounds.

She was extensively studied in the Olaa and Hilo Hospitals, with the following findings: tuberculin test (P.P.D.) negative; urine and stool examinations normal; red count 4.6 million, with 14 grams of hemoglobin and normal-looking red cells; white count 8,050, with

40% polymorphonuclear leukocytes, 8% stab forms, 7% metamyelocytes, 42% lymphocytes, and 3% eosinophiles; fasting blood sugar 77 mgm. per hundred cubic centimeters; non-protein nitrogen 34, urea nitrogen 15.4, uric acid 3.6, creatinine 2, cholesterol 136; B.M.R. +15% and -2%; E.K.G. normal. Physical examination revealed only underweight, loss of tone and strength of all muscles, brownish discoloration of the skin of her face, and a blood pressure of 100/60.

Treatment was without avail until October, 1940, when it was decided that she probably had a chronic suprarenal deficiency and she was started on 0.5 cc. daily of an adrenal cortical extract, 1 gram of enteric coated sodium chloride three times a day, and a low-potassium diet. She noted immediate relief, with a weight gain from 87 to 98 pounds in two months, though the sodium chloride had to be stopped because of intolerance after three weeks. Recently, synthetic desoxycorticosterone acetate has been substituted for the cortical extract, and she has remained symptom-free on a dose of 1 cc. weekly, with immediate relapse on several occasions when our supply of the drug became exhausted. It is planned to secure pellets of this material and plant them in her subcutaneous tissue for slow absorption.

*Case 3.* Number 669, T.S., a 19 year old Japanese boy, was admitted October 25, 1941, because of fever, headache, pain all over the body, and a feeling of being "too weak to stand up." He had been ill at home for two days.

Examination revealed only generalized weakness, marked injection of the sclera of the left eye, and fever. Temperature was 101F, pulse 100; the white count was 19,500, the red count 2.28 million, and the hemoglobin 50% of normal; the urine was very dark, and showed 1 plus albumin. The following day both eyes were injected, and the patient developed epistaxis, vomited blood, and had bloody stools. Two days later jaundice appeared, and steadily deepened.

Guinea pigs were inoculated with both urine and blood; after four days the animal inoculated with blood died, and autopsy revealed the typical picture of Weil's disease, with leptospira in the liver and kidney tissues.

The nose-bleeds were a major problem and required constant treatment, including tight post-nasal packs. Two blood transfusions had been given from donors who had not had Weil's disease. He made slow but steady recovery and was discharged on December 1, 1941.

At the time of this boy's admission, a near neighbor of his was in the hospital recovering from a severe attack of Weil's disease, also proven by recovery of leptospira from inoculated guinea-pigs. (Unlike this boy, the neighbor did not show the marked scleral injection that has previously been commented upon by Dr. Keay of Pepeekeo.) Recent literature suggests that Weil's disease is a very rare condition, but our experience in the Islands, as shown by a report of the Bureau of Communicable Diseases, does not confirm this. However, all cases of jaundice are not Weil's disease; the diagnosis must always be verified by accepted laboratory procedures, including guinea-pig inoculation. A com-

prehensive article bringing this subject up to date seems indicated.

*Case 4.* Number 753, W.R., a 5 year old boy, was admitted June 7, 1940, because of edema of the face, arms, legs and abdomen. The urine showed 4 plus albumin, Sp.G. (not corrected for albumin) 1.020, acid reaction, and no cells, casts or sugar. The white blood cell count was 13,100 per cubic millimeter, the hemoglobin 75%, the red count 4.75 million; the blood non-protein nitrogen was 34 milligrams per hundred cubic centimeters, the blood cholesterol 340, and the serum protein 3.8 grams per hundred cubic centimeters, of which albumin was 1.0%, globulin 1.09%, and fibrinogen 1.7%—a reversal of the albumin-globulin ratio.

During eighteen months of constant observation in the hospital, this patient has shown no signs of chronic nephritis. He has been tried on various regimes, the most effective of which has been a low-salt, high-protein diet, with restriction of fluids to 700 cc. daily. Diuretics have proven ineffectual. Abdominal paracentesis has to be done about once a month, about 3 liters being obtained each time. His mentality is high. Chest X-ray shows no evidence of adhesive pericarditis.

This boy is presented as a case of lipoid nephrosis, with a prognosis of future chronic nephritis or death from intercurrent infection, such as a pneumococcal peritonitis. The latter was the outcome of a similar case we had two years ago in an eighteen year old boy, and similar cases have been reported.

*Case 5.* Number 678, a 28 year old Japanese woman, unmarried, was admitted October 28, 1941, because of a severe prolapse of the rectum.

She had gone as far as the fourth grade in school when she began to become so reticent that schooling was stopped. Nine years ago, at the age of nineteen, she went to bed, and has remained there since. Her aged mother had been attending to her every need. She ate only under compulsion, and urinated and defecated in the bed; in short, she led a completely vegetative existence, and never spoke to anyone. The rectal prolapse developed about seven years ago and has grown steadily worse. At the time of admission it had been coming down every four or five days, and protruded about seven inches.

Examination revealed a moderately tall 28 year old girl weighing only 79 pounds, with flabby, ribbon-like musculature. She was completely withdrawn, burying her head in her arms when approached, and catatonic: her arms and legs would remain in any position in which they were placed, until they became exhausted.

The urine contained a trace of albumin, with 15 to 20 pus cells per high-power field; the white count was 7,000, the red count 2.27 million, and the hemoglobin 55%. There was a low-grade vaginitis and cervicitis, due to a prolapse of the uterus which accompanied the prolapse of the rectum. The protruding rectum measured about 7 inches from its apex to the dilated sphincter, and was about 5 inches in diameter by reason of edema and congestion.

The prolapse was reduced, and the patient was given general supportive treatment for two weeks. She was then submitted to a Vernon David modification of the Rehn-Delorme operation, as outlined by Horsley,



for correction of the prolapse. Cyclopropane anesthesia was used. Considerable blood was lost, and before the operation was completed the patient went into severe shock. Two transfusions of 500 cc. citrated blood each were given, along with oxygen and adrenalin, and the operation completed. For forty-eight hours afterward she was critically ill, but then began to rally and has improved rapidly since. She is now feeding herself, walking with assistance, and using a toilet; she greets her physician with "Good morning" and answers simple questions with "yes" and "no."

The report of this case is preliminary, but it is presented as a case of schizophrenia, catatonic type, with remarkable recovery following a prolonged period of severe surgical shock.

#### SUMMARY

Five cases in the wards of a sugar plantation

hospital have been presented: (1) a case of *tetanus* beginning two months after the wound that presumably caused it, and relieved by rectal barbiturates and ether in oil; (2) a case of *influenza* in a patient believed to have *Addison's disease*, with the suggestion that an influenza epidemic may be beginning in the Territory; (3) a case of *Weil's disease*, with the suggestion that a comprehensive article on this subject seems indicated because of the prevalence of this disease in the Territory; (4) a case of *lipoid nephrosis* in a 5 year old boy; and (5) a case of *schizophrenia* with striking improvement following—and, we believe, due to—a prolonged period of severe surgical shock following surgical correction of a rectal prolapse.



# Clinical Suggestions from a Plantation Hospital

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## VATSOL—A SOLVENT OF MANY PURPOSES

Two years ago Dr. F. E. Hance of the H.S.-P.A. Experiment Station, speaking on weed spraying problems, demonstrated a wetting agent known commercially as Vatsol, "the stuff that makes ducks sink." He dipped a waxy panex leaf in a glass of water and of course the water ran right off; the same leaf dipped in 1:200 Vatsol solution came out wringing wet.

It occurred to me then that Vatsol should make a good antiseptic solvent as it reduces surface tension to zero and would permit a marked increase in penetration. I prepared a 10% Mercurochrome solution using 1:200 Vatsol as a solvent instead of water; greasing my arm well with mineral oil I dropped a drop of this solution on the oily surface. As the accompanying illustration shows, it immediately wet the oily coating and spread out to cover an area about the size of a half dollar. Aqueous Mercurochrome would not wet the surface at all; the drop either remained on the oil or rolled off.



Fig. 1. Left: Aqueous Mercurochrome 10%. Right: Mercurochrome 10% in 1:200 Vatsol.

This solution makes a good solvent for other antiseptics such as mercuric chloride, potassium permanganate, potassium-mercuric iodide, oxy-cyanide of mercury, etc., and would permit better penetration of antiseptics into oiled joints of instruments.

Vatsol solution plain as an ear douche is much

better than water for loosening impacted cerumen. It is no more irritating to mucous membranes than soapy water, and can be used in the various body cavities. Silver nitrate, silver picrate and the various silver proteins are soluble in it. The sulfa drugs are as soluble in it as they are in water, and gentle heating increases their solubility. It should promote the penetration of the drug through the waxy capsules of many organisms. In this connection it seems the staining qualities of various dyes might be enhanced. Many of the burns that arrive greased might have medication applied by spray instead of first painfully removing the oily coating.

Vatsol is the American Cyanamide & Chemical Company's trade name for the ethyl ester of dicarboxylic acid and is distributed in the Territory by the Pacific Guano & Fertilizer Company. It is mildly antiseptic; it is relatively inert, harmless to skin and mucous membranes, and non-poisonous. The solution placed in the mouth produces a puckering sensation which soon disappears. It has the added advantage of being extremely cheap.

## CONTAINER FOR STORING BLOOD

The accompanying illustration shows the adaptation of empty Baxter Vacoliter bottles for drawing, storing and administering blood at the Laupahoehoe Sugar Company's Hospital.



Fig. 2. Left: Filled and sealed container. Right: Container empty. Foreground: 1. Vacoliter stopper, 2. Plastic golf tees, 3. Hygeia food cell cover, 4. Scotch tape.

In order to properly cleanse the bottles, the band sealing the stopper was cut with a circular saw and the stopper removed. In doing this most of the vent tubes were broken. In drawing the blood these were replaced by sterile glass drinking straws, which were removed when the bleeding was completed. Two sterile plastic golf tees were inserted into the holes in the stopper, the top covered with a sterile Hygeia food cell cover such as is used ordinarily for covering infant feeding bottles, and the cover sealed with Scotch (cellulose) tape. The golf tees soften and become deformed from heating; they should therefore be sterilized by soaking in potassium-mercuric iodide solution 1:2000 or some similar preparation.

#### A SERVICEABLE POWER BONE TOOL

The Fordom Electric Company, 27 Park Place, New York, manufactures several models of flexible shaft tools. The shafts are readily detachable and can be sterilized by autoclaving. They should be lubricated before each use by sterile petrolatum or castor oil. The tool illustrated is one of the lighter models but is capable of many of the functions of the usual orthopedic saws such as insertion of bicycle spokes for skeletal traction, cutting of bone grafts, pegs, and inlays, drilling, notching and rough shaping, as well as multiple drilling

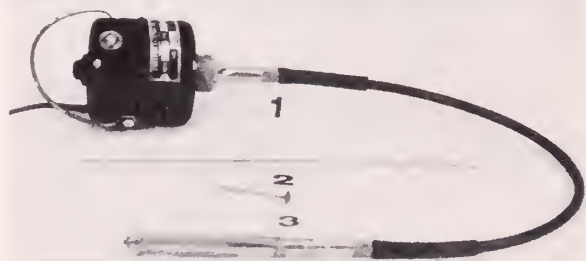


Fig. 3. The Fordom Flexible Shaft Tool: 1. Joint at which flexible shaft can be detached for sterilizing; 2. Bicycle spoke with end trimmed for use as traction pin; 3. Saw.

for non-union. The outfit, complete with assorted accessories, costs \$13.75 and for a little more comes provided with a spring connection between the hand piece and flexible shaft, giving additional flexibility at the point where it is most needed. Burrs, mandrels, saws, drills, etc., can be purchased quite reasonably and with the addition of a foot switch (an auto starter switch makes a

good one) a cheap bone tool is within the reach of many institutions whose occasional use of such a device would not warrant the cost of the bone tools manufactured by the instrument makers.

#### THE USE OF COTTON AS NON-ABSORBABLE SUTURE

In these days when non-absorbable suture material is becoming more and more popular and prepared suture material from the mainland harder to get, attention is called to the work of Drs. Alton Ochsner and Mims Gage on cotton at Charity Hospital in New Orleans. The cotton they use is the ordinary J. & P. Coats cotton sold in dry-good stores. During the past 8 months I have used it exclusively in 53 operations and am very pleased with it. It makes excellent material for tendon repair, and, according to the experimental work of Dr. John M. Farris of Ann Arbor, it is far less irritating than silk. The only places where it should not be used are in operations on the biliary and urinary tracts where, like silk or any other non-absorbable suture, it tends to act as a nidus for stone formation. Ochsner especially favors its use in contaminated wounds. Unlike silk, it rarely provokes the formation of a suture sinus unless knots are placed immediately beneath the skin.

Cotton is prepared for use by loosely winding on two-inch lengths of rubber tubing as it shrinks during autoclaving and some of the fibres would be broken were it sterilized on a hard core. It is then sterilized by boiling in water for twenty minutes or autoclaving at fifteen pounds pressure for fifteen minutes.

Sizes 20 and 30 are adequate for peritoneum, fascia and skin, and sizes 50 and 80 for ligating small vessels. It is quite limp and at first seems difficult to handle, but one soon becomes accustomed to this quality. It should never be used as a continuous suture; small bites of tissue should be taken in interrupted sutures and the ends cut extremely close to the knot thereby leaving a minimal amount of foreign material. Cutting close to the knot is quite safe as a square knot in cotton does not slip as it might with catgut.

An interesting article by Drs. Meade and Long appeared on this subject in the December 20, 1941, issue of the Journal of the American Medical Association.



# Pneumococcus Meningitis

## REPORT OF APPARENT CURE WITH SULFANILAMIDE

C. BRUCE BROWN, M.D.  
Hilo, Hawaii

The author of the section on pneumococcus meningitis in Nelson's Loose-Leaf Medicine says, "All of our cases died, and this is the general experience. The writer does not personally know of a single case of pneumococcus meningitis in which the diagnosis has been made with sufficient attention to bacteriologic technique to meet all objections, in which recovery has taken place."

This statement exemplifies very well the feeling that existed with regard to this disease prior to the advent of the sulfonamide drugs. The case presented herewith was treated over three years ago, at a time when sulfanilamide was the only available member of the series.

### CASE REPORT

*Case No. 21861, Hilo Memorial Hospital. E.V.S.,* a 17-year-old Hawaiian-Caucasian boy, was admitted to the hospital on the service of Dr. S. R. Brown, on December 7, 1938. He gave a history of a "cold" two weeks before, of only a few days' duration, following which he returned to work. A few days later, on December 5th, he developed a severe frontal headache; the follow-

ing night he vomited and complained of pain in the right ear. The day of admission he developed stiffness of the neck, and when brought to the hospital he was semicomatose, muttering and disoriented, and required restraint.

On examination he was found to have marked spasticity of the neck; Kernig's sign was present. The spinal fluid was under increased pressure, and turbid, with flakes of pus. A stained smear showed numerous encapsulated diplococci which were identified as type 13 pneumococci. Type-specific serum not being available, one intramuscular therapeutic dose of Lilly's antipneumococcus serum (S-95) was given. At the same time Prontosil, 10 cc., was given intramuscularly, and sulfanilamide was started by mouth in a dose of 30 grains (2 grams) every three hours. After forty-eight hours this was reduced to 30 grains (2 grams) every four hours; it was continued at this level for two weeks.

The morning after admission the patient was conscious and rational, and complained of pain in the right ear; the otological consultant reported hyperemia of the right drum membrane, without bulging, sagging of the upper posterior canal-wall, or mastoid tenderness. A diagnosis of early otitis media was made. A general physical examination revealed no other positive findings. The spinal tap was repeated this day, and daily for the

### CEREBROSPINAL FLUID FINDINGS

Date	Appearance	Globulin	R.B.C. per cu. mm.	Leucocytes			Bacteriologic Examinations
				Total per cu. mm.	Polys %	Lympho- cytes %	
12-7-38	Turbid (flakes of pus)	+++	0	6,640	—	—	Direct smear: many Gram-positive diplococci with capsule; Neufeld reaction positive, type 13.
12-8-38	Cloudy	++	0	7,600	90	10	Direct smear: pus cells; no bacteria.
12-9-38	Turbid	+	0	3,840	92	8	Direct smear: occasional Gram-positive diplococcus. Culture: bile-soluble Gram-positive diplococci.
12-10-38	Pale yellow	+	0	2,100	76	24	Direct smear: occasional Gram-positive diplococcus. Culture: Gram-positive cocci, some in short chains, bile soluble.
12-11-38	Cloudy	+	0	1,410	68	32	Direct smear: no bacteria. Culture: no growth in four days.
12-12-38	Clear	trace	0	750	88	12	Direct smear: no organism. Culture: no growth.
12-13-38	Clear	trace	0	47	46	54	
12-14-38	Clear	trace	0	29	10	90	
12-15-38	Clear	trace	0	3	—	—	

following week. The spinal fluid changes are shown in the accompanying chart, *q.v.* Sputum examination on December 8th showed numerous cocci and diplococci, with a positive Neufeld reaction with type 13 serum on a few of the latter.

The patient improved slowly but steadily, and by the seventeenth hospital day he had no residual symptoms except deafness in the right ear. When he was discharged, on January 10, 1939, thirty-four days after admission, this had improved considerably.

#### COMMENT

Of interest, but of questionable significance

in this case, is the history of a compound depressed skull fracture in 1928 which required surgical decompression. Recovery from this was uneventful and there were no sequelae.

The effectiveness of sulfanilamide against the pneumococcus in this and in other reported cases of meningitis should be kept in mind, particularly for cases which may fail to respond, or which may prove dangerously sensitive, to sulfapyridine.



# Prematurity: The Leading Cause of Infant Deaths in Hawaii<sup>1</sup>

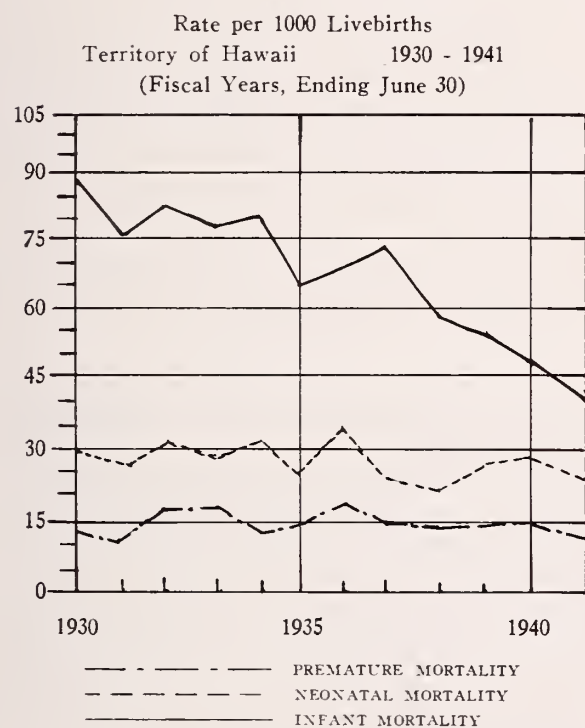
## A PROPOSED PLAN FOR CARE OF PREMATURE INFANTS

C. L. WILBAR, JR., M.D.

Honolulu

The infant death rate in Hawaii has dropped during the past twelve years from 87 to 43 per 1,000 live births. *The premature death rate is the same now as it was at the beginning of this period.* During the past fiscal year prematurity was certified as the cause of 128 infant deaths—nearly one-third of the total. We may be justly proud of the rapid drop in infant mortality; it is evidence of real progress in the attack on nearly all causes of infant deaths; but there is one outstanding exception: prematurity. The accompanying graph illustrates this situation.

### *Trend of Infant Mortality, Neonatal Mortality and Premature Mortality*



The proportion of premature to full term births is no higher in Hawaii than elsewhere; but of all the prematures born here, approximately 40 per cent die. This compares unfavorably with the mortality in many mainland communities, particularly those in which adequate

programs for the care of premature infants have been developed. The city of Chicago, for example, with one of the best of these programs, reports a mortality of only 19 per cent among its premature infants; Boston and Minneapolis are only a little higher.

There are no insurmountable difficulties in the way of establishing an adequate program for lowering the death rate in prematurely born infants. In general, such programs all embody the following principal features:

- (1) Nurses, adequately trained for this special work, in constant attendance on prematures;
- (2) Adequate special hospital facilities for the care of prematures;
- (3) Supervision of the care of prematures by physicians who have had specialistic training along this line; and
- (4) Adequate facilities for transporting prematurely born infants from homes to hospitals.

Let us consider each of these headings individually, and see how they might be applied in Hawaii.

### NURSING CARE

Dr. Julius H. Hess, probably this country's leading authority on the care of prematures, stated at the annual meeting of the American Public Health Association in October, 1940, that the most important single factor in keeping prematures alive is *constant attendance by adequately trained nurses*. Dr. Charles H. McKhann and other leading pediatricians concur in this belief.

The reason for this is that prematurely born infants frequently die because of just a few minutes' delay in instituting proper supportive measures such as administration of oxygen, artificial respiration or heat, and cleaning out of the nasal passages. Nearly two-thirds of premature infant deaths occur within the first twenty-four hours of life, and many of them can be prevented if the attendant is enabled by adequate training to recognize warning signs in time to institute the proper supportive treatment.

<sup>1</sup> From the Bureau of Maternal and Child Health of the Territorial Board of Health. Submitted for publication November, 1941.



"Adequate training" does not mean merely a few years spent in some hospital nursery, or a few hours spent in listening to lectures; it means specialistic training in one of the large premature centers in the country, or comprehensive courses in premature care conducted by individuals who have been properly trained in one of those centers. There are very few nurses now in the Territory who are really adequately trained in the care of premature infants; however, the Bureau of Maternal and Child Health has a consultant nurse who is well trained in the care of prematures and is perfectly competent to teach this subject to hospital nurses upon request.

#### HOSPITAL FACILITIES

The hospital facilities necessary for the proper care of prematures are, unfortunately, somewhat expensive. It is therefore not ordinarily practical to designate more than one or two hospitals in any given community as centers for premature care. In this way the money spent can be used most efficiently. The equipment needed includes efficient automatic control of temperature and humidity for the premature infants, both collectively and individually, as well as facilities for maintaining asepsis in the surroundings, a properly equipped milk laboratory, available breast milk, and separate rooms for infectious cases and for any cases born outside the hospital.

#### SUPERVISION BY TRAINED PHYSICIANS

The knowledge required for the adequate medical care of a prematurely born infant is as highly specialized as that required for the practice of ophthalmic surgery, roentgenology, or any other specialty. Although, as has been pointed out, the adequately trained physician is nowhere near as important as the adequately trained nurse, because of the frequently emergency nature of the problems involved, a successful premature program must have its general policies controlled and supervised by a physician specially trained in the care of premature infants. This usually means, of course, a pediatrician, preferably one who has had

fairly recent post-graduate instruction in this particular field.

#### ADEQUATE TRANSPORTATION

This is indispensable, for the reason that it is well-nigh impossible to improvise in the home adequate facilities for the care of the premature. Special, properly trained nurses are often beyond the family's means; regulation of temperature and humidity is very difficult; and maintenance of an aseptic environment is impossible. Prematures born at home must, therefore, be transported as soon as possible to the hospital.

The essential features of the transportation facilities required are a heated unit, available oxygen, and a clean environment. The portable Hess incubator which has proven so successful in Chicago is a good example of a proper transportation unit. It can be sterilized, it contains a thermostatically controlled heating unit and a connection for oxygen administration, and it can be electrically connected to the ceiling-light socket of an automobile.

Because we have in the Territory no adequately equipped hospital for premature care, to which prematures born at home might be taken, this problem of transportation need not concern us at the moment. However, the plans for the new children's hospital in Honolulu include proper facilities and space for the care of prematures, and when these become available, proper transportation facilities will immediately be of the utmost importance.

#### CONCLUSION

Our present method of caring for prematurely born infants is not satisfactory; far too many of them die. This is not merely an individual, but a *community* problem, which should be supported by public funds as well as by private enterprise. Our combined resources must be called upon if our program for premature care is to rise to the same level as treatment in the other medical and surgical specialties. Other communities have done it—and so can Hawaii!

# Dyschondroplasia (Ollier's Disease)

## REVIEW OF THE SYNDROME AND REPORT OF A CASE

R. T. EKLUND, M.D.

Pepeekeo, Hawaii

Achondroplastics have been recognized for centuries. Sculptures indicate that this type of dwarfism was known in ancient Egypt, and many of the dwarfs pictured in art belong to this group. Everyone is familiar with these peculiarly short-limbed dwarfs, with their large heads and characteristic faces, in which the nostrils seem directed almost forward. They are usually intelligent, active and strong. They may reach an advanced age and bear children, though, on account of the deformity of the pelvis, these must be delivered by cesarean section.

### HISTORY

There seems to be a very close resemblance between this type of dwarf and the one being presented in this paper, not only in clinical appearance, but also in pathologic anatomy. The type here presented might be described as "half-dwarf". Ollier in 1899 first described a case of cartilaginous dystrophy in which the extremities of one side of the body were involved. In 1900 his pupil Molin described 3 similar cases. According to Ehrenfried (1915), Virchow described a similar condition, calling it "multiple cartilaginous exostosis." Ehrenfried reviewed over 600 cases in the foreign literature and 75 in the American, covering the period 1900-1917. Hale has reviewed an addition-

al 53 cases reported in the literature between 1917 and 1930.

### ETIOLOGY

Bentzon, in 1923, described lesions confined to the right leg. He also did experimental work in rabbits, injecting irritants near the nutrient arteries of the tibia and fibula, and developed the theory that Ollier's disease could be interpreted as the reaction of bone to an active hyperemia due to anomalies of the sympathetic nervous system. However, it is generally felt at the present time that the etiology of the syndrome is unknown.

Frangenheim and others consider Ollier's disease not as a pathologic entity but as a clinical syndrome which, together with the multiple enchondromas and the cartilaginous exostoses, makes up the great group of dyschondroplasias. These other two disorders are characterized by multiplicity of localization; they are derived from the conjugate cartilage; and they are often found combined in the same individual.

### PATHOLOGY

The earliest evidence of this disease is usually noticed in infancy or early childhood in the form of hard irregular nodules attached to various long bones in the region of their epiphyses. Premature

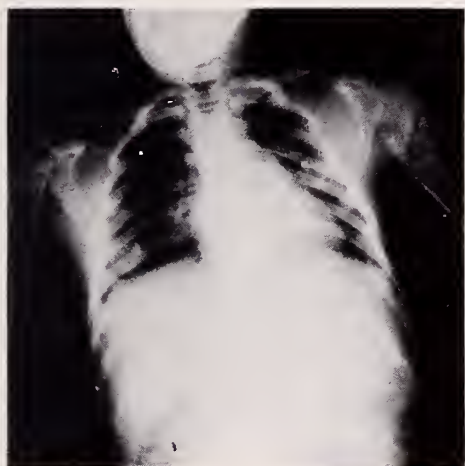


Fig. 1. (left) Note involvement of left third, sixth, ninth and tenth ribs and inferior angle and vertebral border of right scapula.



Fig. 2. (center) Left humerus. Note limitation of lesion to proximal portion of shaft, sparing the proximal epiphysis and the distal portion of the shaft.



Fig. 3. (right) Forearms. Lesion confined to shaft of left radius. Note characteristic "mushrooming" about the epiphysis and the typical moth-eaten appearance of the lesion, with scattered areas of beginning calcification. Note also unusual involvement of shaft of proximal phalanx of left second digit.

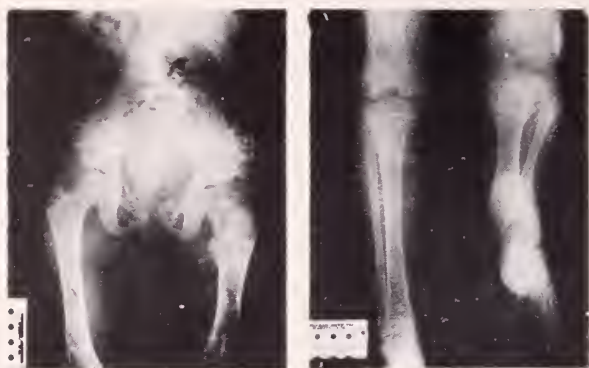


Fig. 4. (left) Pelvis and femurs. Note involvement of both ends of left femur, distal end of right femur, and both innominate bones. Also probable early lesion of the fourth lumbar vertebra.

Fig. 5. (right) Legs. Early lesion, distal end of shaft of right femur; advanced lesions of left femur, tibia, and fibula. The shortening is well shown. The beginning involvement of the right side suggests that this may be in a transitional stage from a fairly typical Ollier's disease to the more crippling Morquio's disease, which may involve the entire skeleton with the exception of the skull.

ossification of the cartilage occurs, and the long bones become shorter, though not thinner, than normal. At first sight it would seem that the epiphyses were the chief site of involvement; actually, in the majority of cases, the epiphyses are normal. The increase in size at the bone ends is due to a cup-shaped enlargement of the diaphysis around the epiphysis; this may be so large as to actually interfere with joint motion.

The viscera, including the endocrine glands, are found to be quite normal; all the changes are explained on the basis of disturbed cartilage-growth.

### PROGNOSIS

Few patients die of the disease, and it apparently becomes at least arrested at adolescence, though no retrogression is noted. No new osteochondromas occur, and no new deformities; and there is roentgenographic evidence of the normal progression of ossification. Occasionally there may be pressure on the spinal column from an exostosis; paralysis may occur, or an aneurysm may develop because of pressure. Some reports suggest that patients with dyschondroplasia have an abnormal tendency to the development of sarcoma in middle life.

### TREATMENT

There is no known treatment for the disease. Surgery is employed only for the relief of marked deformities or limitation of motion of joints.

A comment in the 1941 Year Book of Radiology suggests that there are points of similarity between epiphyseal dysgenesis associated with hypothyroidism, and osteochondritis deformans juve-

nilis. The former responds to thyroid medication; perhaps similar treatment would help in these cases.

### CASE REPORT

E.L., a 9 year old Portuguese-Filipina, had been born at the Pepeekeo Hospital after an easy 2½ hour labor; aside from an 18 hour delay in expulsion of the placenta, both the pregnancy and the delivery were uneventful. The patient's mother was Portuguese, and had had one previous child. The father was a Filipino, 32 years old. The child was normal at birth, and weighed 8 pounds. Neither parent gave any family history of dwarfism.

According to the father, the patient seemed perfectly normal until about 9 months of age, when she began to crawl. At that time he noticed that she kept her left leg up off the floor. She talked at 2 years of age, and first walked at 3.



Patient E.L., December, 1941, showing shortening of left tibia and fibula and knobby enlargement at distal end of tibia, fibula and ulna.

As she grew older, asymmetry of her body and extremities became more and more noticeable. There was decrease of linear growth of the left leg and forearm, with progressive deformity.

The child underwent an uneventful tonsillectomy and adenoidectomy under general anesthesia in November, 1937, and a simple mastoidectomy (right side) in December of the same year.

At the time of the latter hospital admission, skeletal measurements were made and roentgenograms taken. The latter were sent to Dr. Craig of Honolulu and Dr. Morton of Rochester, New York, who agreed on a diagnosis of Ollier's disease. The skeletal measurements at that time were as follows:

	RIGHT	LEFT
Arms (acromion to finger-tips)	18 in.	15½ in.
Legs (ant. sup. spine to int. malleolus)	20 in.	16½ in.

In March, 1940, the patient was readmitted for bone studies. Physical examination revealed no abnormalities other than the skeletal deformities. There was shortening



of the left humerus, tibia, and fibula, with knobby deformity of the distal epiphysis of the left radius and ulna and both epiphyses of the left tibia. Other bones, except for the left scapula, were grossly normal.

The blood serum calcium was 9.9 milligrams per cent, and the blood serum phosphorus 3.3; Wassermann and Kahn were negative; the urine contained 2 plus albumin, a few red and a few white blood cells and a few mixed organisms, and no sugar or casts.

The measurements of the affected extremities at the present time (December, 1941) are as follows:

	RIGHT	LEFT
Arms ( <i>acromion to finger tips</i> )	23 in.	19½ in.
Legs ( <i>ant. sup. spine to int. malleolus</i> )	24¼ in.	19 in.

SUMMARY

The syndrome of chondrodysplasia has been reviewed, and a case of dyschondroplasia (Ollier's disease) has been reported.



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## EDITORIALS

### VENEREAL DISEASE CONTROL

In these times of mobilization, with the introduction of large numbers of service personnel into various communities, the problem of control of venereal disease is more than ever a subject of discussion among medical officers, civilian physicians, and moralists, alike. Without attempting to comment on any plan for this purpose, let us just glance briefly at Hawaii's record in this regard.

Prior to 1928, the incidence of venereal diseases among the army personnel in the Territory of Hawaii was practically the same as that in the United States at large. Since that time it has dropped sharply, and has fluctuated for the most part between one-fourth and one-half that of the United States generally. It is about one-third that of the United States at large, at the present time.

A communication from a high-ranking naval officer to a public health physician a few months ago commented on the gratification with which the Navy had observed a drop of nearly 40% in the venereal disease incidence in the Pacific Squadron, since its arrival in Honolulu nearly a year ago. The letter went on to say that this was the more pleasing, because of the fact that the incidence of venereal disease in the Atlantic Squadron had not changed appreciably over this same period of time, and still remained at its original level.

The eagerness with which a certain type of mind pursues that elusive will o' the wisp known as "stamping out prostitution" might well be dampened a bit by perusal of these facts. There is food for reflection in them. It is of course the view

of nearly all medical men and of most other thinking persons that the most important objection to prostitution in a community lies in its tendency to spread venereal infection. If this is correct, and if our record in the matter of venereal disease control is so enviable—and figures (not merely statistics) are available to prove it—it might be well for us to consider the reasons therefor. And it might be well to make sure, before any changes are made, that they will in fact be changes in the right direction. It would appear that we are already doing a remarkably effective job of controlling venereal infection in Hawaii. Let's not put anything else into the machinery without first making certain that it isn't a monkey wrench!

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## ATTEND

### YOUR THURSDAY MORNING MEETINGS

The responsibilities of the Honolulu County Medical Society have never been greater than now, and its functions have never been more important to its members and to the community in general. It happens that the same forces that have brought this situation about have made it impossible to hold the monthly scientific and business meetings of the Society. It has seemed advisable to substitute weekly daytime meetings in place of the former monthly evening meetings, and through the courtesy of Dr. Louis Hirsch, acting in the absence of Dr. Nils P. Larsen, these have been incorporated with the Thursday Morning Clinics. The combination meetings are being held at the usual hour—9 o'clock on Thursday morning—in the auditorium of the Mabel Smyth Building instead of in the nurses' classroom as formerly.



Important announcements have frequently to be made at these meetings; decisions must often be made which affect the entire Society; the civil and military authorities occasionally find it necessary to communicate with the Society as a whole, and use these meetings for that purpose. The attendance at these meetings should be sufficiently large to come reasonably near being representative of the entire Society.

For your Society officers and committee chairmen, and representatives of the Medical Office of Civilian Defense and the Army and Navy, to have to address their remarks to a handful of members, constitutes a gross discourtesy to them, and gives the Society itself a distinct "black eye." Nor does the fact that nearly half the turnout consists of Army, Navy and Public Health Service officers put the civilian doctors in any better light.

If you are really too busy to spend an hour in this way on Thursday mornings, and too *akamai*\* medically to profit by the active and interesting clinical session which immediately follows the business meeting, perhaps you can spare 30 minutes—for the business meeting seldom lasts after 9:30 and is frequently over even earlier. We will take the liberty to doubt that any doctor cannot usually arrange to be where he likes for half an hour on any given morning each week. Honesty, we think, would compel most of us to admit that our failure to attend these meetings was due oftener to laziness or lack of interest than to honest inability to attend. Both attitudes are, in this day, inexcusable. They reflect no credit on the men who assume them, and they reflect no credit on the Society of which such men are members.

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### NURSES ARE SCARCE

Physicians who, during the present shortage, call nurses for patients who have no actual need for them, will find their seriously ill patients obliged to get along without special care. This is the warning sounded by the Nursing Service Bureau.

Elsewhere in this issue, under reports of the Office of Civilian Defense, is given an account of the serious shortage of nurses in the Territory and what is being done about it, and an appeal is made here to all physicians to be very conscientious in calling for private duty nurses. Wealth, laziness or fussiness on the part of pa-

\* *akamai*—Hawaiian for clever, "smart", capable, expert, well-informed.

tients should not be the criterion for tying up the services of a nurse when the hospitals are so short-staffed and "specials" are hard to get for the seriously ill.

This matter is largely in the control of the doctors, and you are asked to cooperate at least until such time as the additional nurses now being recruited on the mainland arrive to lighten the general burden.

A few other suggestions that come from the Bureau may be worthy of consideration:

Some doctors feel that private duty nurses are *never* a necessity and expect the hospital staff to give frequent and prolonged nursing service to their seriously ill patients, special nurses are not called until there has been complaint of staff care and often then the special arrives after the most difficult period of nursing is past. Consideration should be given to the hospital staff nurses, inadequate as they are in number today, and overburdened.

Special nurses are often called too late in the evenings to find transportation. A little forethought might correct this.

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### MEDICAL UNPREPAREDNESS: II

Under this heading in our last issue we detailed a few items indicative of the usual superiority of hindsight over foresight. Further evidence is presented herewith.

The designation of first aid and other medical units by the symbol of the red cross created so much confusion in people's minds that the American Red Cross requested the removal of these and the substitution of the medical emblem of the O.C.D. The Red Cross found itself receiving not only undeserved credit for the organization and operation of first aid units, but also undeserved blame for failure to establish additional units in various localities where people felt they were needed. The stylized caduceus has accordingly replaced the red cross throughout the city. A tear may be shed, in passing, for one more flouting of historic and mythological tradition, by the use of Mercury's caduceus instead of Aesculapius' staff and serpent to designate medical activities as such.

Traveling during air raid alarms is forbidden to the general public, but essential for medical personnel; it has been necessary to provide doctors and nurses assigned to duty in first aid stations

or hospitals with large passes which are inserted, when in use, into a celluloid pocket taped onto the windshield. Similar passes have been provided to permit the auxiliary emergency ambulances to travel during restricted hours. The permanent ambulances have been designated by a white square painted on the left front fender. Before these provisions were made, both medical personnel and ambulances repeatedly found themselves prohibited by police orders from moving at all during an air raid alarm. The present arrangements appear to be eminently satisfactory to all concerned.

Air raid shelter design is still in a state of flux. Covered shelters have proven difficult of construction because of lack of essential materials. Uncovered shelters, particularly the simple open trenches with which most schools have been provided, have developed an understandable tendency to fill with water, and in many instances the choice between facing an onslaught of possible bombs or rather probable pneumococci has been a difficult one. Corrugated iron roofing, were it only available in sufficient quantities, would be the ideal covering material, for it would protect not only the shelter against rain, but its occupants against falling antiaircraft shell fragments as well. However, an air raid shelter must have a roof of sorts; a wet ditch is a fine and even a comfortable place to be if bombs are falling all around, but it is a well-nigh impossible haven in which to squat for an hour or so of air raid alarm during which nothing happens.

The air raid wardens, who have already been saddled with a most extraordinary catalogue of duties and responsibilities, have now been given a streamlined course in first aid. The course has been outlined by Dr. H. S. Dickson, in the Emergency Medical and Ambulance Service office, and includes only the management of the more urgent varieties of injury. Perhaps it is unfair to include this as an example of unpreparedness; the organization of thousands of men for an undertaking of this sort could probably never have been accomplished without some such concrete evidence of its necessity as was provided for us on December 7th.

Unpreparedness from the standpoint of the lack of available hospital beds, mentioned in our last issue, has been receiving most constructive attention from the Army and the Office of Civilian Defense. The problem appears to be well on its way to solution, for present purposes at least.

## NOTICE TO CONTRIBUTORS

Attention is directed to a few frequent errors in the preparation of manuscripts and reports submitted for publication in the JOURNAL. A Mainland periodical would probably just return many such papers to the author; here, time or other factors often require us to simply make the corrections ourselves. These are often very time-consuming, and please bear in mind that we are an unpaid staff working on the JOURNAL in our spare time. Your cooperation will save us a great deal of unnecessary work, and will be profoundly appreciated. The following rules are those most frequently broken:

1. Type manuscripts *double-space* (or triple space) on one side of the paper only, and send us the *original*, not a carbon copy.

2. Type *captions* for photographs, tables or charts on a *separate* sheet of paper, and number the photographs, etc., on the back, to correspond.

3. *References* must be double-spaced and must correspond to the A.M.A. form, as follows:

- (1) Author's surname and initials, and a colon.
- (2) Title of article, and a comma.
- (3) Name of periodical, abbreviated as in the Index Medicus, followed by no punctuation.
- (4) Volume number, and a colon.
- (5) Page number, followed by no punctuation.
- (6) Month, in parentheses, and day of month if the periodical is a weekly.
- (7) Year—and a period.

In references to texts, the *edition* number, the *place* of publication, the publisher's name and the *year* seem to be the most common omissions.

Please include only references you have looked up personally; any others should be accredited to their actual source, as having been "cited by" so-and-so, or included in a Yearbook, or otherwise abstracted.

Any physician interested in really preparing medical papers properly should by all means obtain a copy of *Medical Writing: the Technique and the Art*, by Morris Fishbein (Chicago, A. M. A. Press, 1938, price \$2.00), and use it as a reference handbook: it is so full of specific, useful and valuable instructions and information that mere reading of it will by no means suffice. Lacking a copy of this invaluable book, we can only suggest that any copy of an A.M.A. periodical, such as the JOURNAL, will serve as a reasonably adequate guide to proper forms of writing. A *little* more work at your end will save a great deal of work at ours. Thank you!

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RAHWAY, N. J.



# PROGRESS IN INTERNAL MEDICINE

## HYPERTENSION

The revival of interest in the renal causes of hypertension, awakened by Harry Goldblatt's work, has been maintained, and now seems to be leading to advances which have practical clinical importance to all practicing physicians.

In 1937 Dr. Goldblatt reported the experimental production of persistent hypertension in animals (dogs and monkeys) by constricting the main renal arteries. (Harry Goldblatt, Studies on Experimental Hypertension, V., The Pathogenesis of Experimental Hypertension due to Renal Ischemia, Ann. Int. Med. 11:69, July, 1937.) This reduces the blood flow to the functioning components of the kidney; *i.e.*, produces renal ischemia. Hypertension of varying degrees of severity, and with or without disturbance of renal function, could be produced by varying the degree of constriction of the renal arteries. There was thereby produced in experimental animals pathological states simulating benign and malignant hypertension in man.

This work was confirmed by a number of investigators. Page (I. H. Page, Production of Arterial Hypertension by Cellophane Perinephritis, J.A.M.A. 113:2046, Dec. 2, 1939) produced similar hypertension states in animals by wrapping the kidney in cellophane, leaving the renal pedicle free. This produces a peri-renal fibrosis, which constricts the renal parenchyma and apparently reduces its blood supply.

Further experiments convinced Goldblatt that the hypertension was due primarily not to a nervous but to a humoral mechanism, initiated by ischemia of the kidneys. The elucidation of the nature of this humoral mechanism has been occupying the attention of many investigators since this time. The literature on the subject is confusing in its magnitude, in its somewhat conflicting experimental results, and even in its terminology. Perhaps the best working hypothesis is that evolved by Corcoran and Page (Corcoran and Page, Arterial Hypertension—Correlation of Clinical and Experimental Observations, J.A.M.A. 116:690, Feb. 22, 1941.) *Renin*\*, a mixture of protein substances present in the cortex of nor-

mal kidneys, is liberated in increased amounts into the renal vein by the kidneys of dogs made hypertensive by renal ischemia. It requires for its vaso-constrictor or pressor action an enzyme-like substance present in normal plasma, *renin activator*. The interaction of these two liberates a third substance, *angiotonin*, which increases blood pressure by vasoconstriction and by increasing the force of the heart beat. Animals with normal kidneys develop tolerance to successive doses of angiotonin, but only to a slight degree if the kidneys are damaged or removed. This indicates that a substance is present in normal kidneys which inhibits the action of angiotonin. This inhibitor or *antipressor substance* has been extracted and used with some success in the control of hypertension in animals and in man.

Thus, in September 1941, I. H. Page and his associates (I. H. Page, O. M. Helmer, K. G. Kohlstaedt, G. F. Kempf, W. D. Grambill and R. D. Taylor, The Blood Pressure Reducing Property of Extracts of Kidneys in Hypertensive Patients and Animals, Ann. Int. Med. 15:347, Sept., 1941) reported the successful results of parenteral administration of kidney extract in experimentally hypertensive animals, and in patients suffering from essential and malignant hypertension. Patients with essential and malignant hypertension have been treated with good results for as long as a year. When injections were discontinued however, blood pressure tended to return to its former levels. Improvement in patients was manifested not only by reduction in blood pressure but also by decrease in heart size, and by improvement in ocular signs and in urinary findings. Unfortunately shock-like reactions occurred; furthermore, because of the lack of standard chemical procedures to yield a uniform product of high potency, the treatment cannot be considered a practical procedure at the present time.

Grollman and his associates (A. Grollman, J. R. Williams, Jr., and T. R. Harrison, Reduction of Elevated Blood Pressure by Administration of Renal Extracts, J.A.M.A. 115:1169, 1940)

\* (This term was applied first by Tiegerstadt and Bergmann in 1898 to a pressor substance extracted from normal kidneys.)

have reported the use of a kidney extract both in experimental hypertensive animals and in man. This extract seems to be at least partially effective in reducing blood pressure when given orally as well as when administered parenterally.

Schroeder (Henry A. Schroeder, The Effect of Tyrosinase in Arterial Hypertension, *Science* 93:116, Jan. 31, 1941) reported that a pure preparation of tyrosinase, a phenolic oxidase obtained from mushrooms by Dr. J. M. Nelson, was used successfully in animals exhibiting ischemic renal hypertension. It inactivated angiotonin and also other pressor extracts and adrenalin. Administered by daily subcutaneous injection to patients with hypertension, it caused quite consistent lowering of both systolic and diastolic blood pressure, with alleviation of symptoms and favorable effects upon the course of the disease. The blood pressure returned to high levels within three to six days after injections were stopped, but symptomatic improvement persisted longer. Unfavorable effects included local painful and allergic reactions, pyrexia, and a persistent pigmentation at the site of injection.

These several reports suggest the probability that there will shortly become available some

synthetic preparation or kidney extract which will be effective in controlling, at least in a measure, certain cases of so-called essential or malignant hypertension.

As a further practical application of Dr. Goldblatt's experimental work, writers have recently reported occasional cases of hypertension having unilateral kidney disease, which were treated surgically with success. Nesbit and Ratliff (R. M. Nesbit and R. K. Ratliff, Hypertension Associated with Unilateral Renal Disease, *J.A.M.A.*, 116:194, Jan. 18, 1941) state that the three most common types of unilateral renal lesion associated with hypertension are those produced by gross occlusion of the renal arteries, including trauma to the kidney; the obstructive uropathies; and chronic inflammatory lesions.

Study of patients with unexplained hypertension should be made to determine the existence of unilateral disease of one of these types. Removal of the unilateral diseased kidney may result in marked improvement or cure. Proper chemotherapy in kidney infections may be a prophylactic measure of importance in preventing the occurrence of hypertension in other patients.

S. E. DOOLITTLE, M. D.



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\* *Laryngoscope*, Feb. 1935, Vol. XLV, No. 2, 149-154—*Laryngoscope*, Jan. 1937, Vol. XLVII, No. 1, 58-60 *Proc. Soc. Exp. Biol. and Med.*, 1934, 32, 241—*N. Y. State Journ. Med.*, Vol. 35, 6-1-35, No. 11, 590-592



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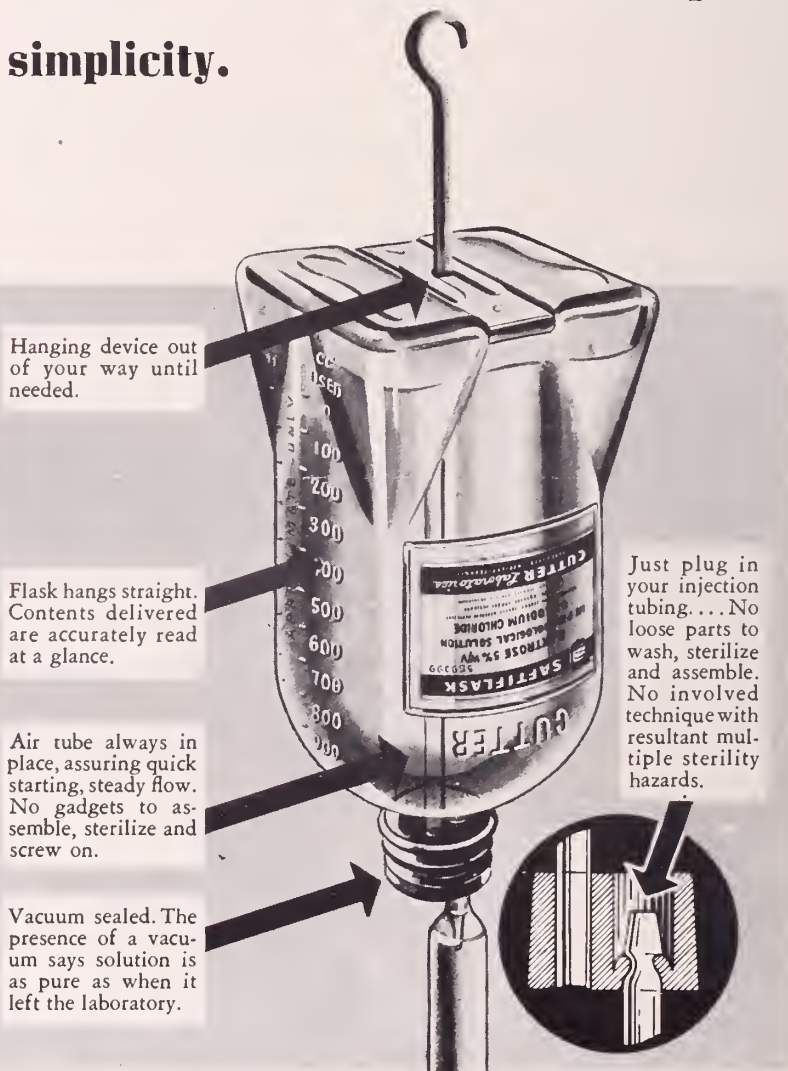
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# RECENT ADVANCES IN SURGERY

## WAR WOUNDS OF EXTREMITIES INVOLVING BONE

During and after the Japanese attack on Pearl Harbor, we were given an opportunity to make observations on numerous war wounds, including many compound fractures. While for the most part our observations were not new, we were able to put into effect some of the ideas presented in current literature regarding the treatment of extensive lacerated wounds and fractures by the use of sulfonamides and immediate application of plaster casts.

### Initial Treatment

The volume of patients received, and the crowding of the operating rooms, required many of the wounds and compound fractures to be treated in a small dressing room on the orthopedic ward.

The skin surrounding the wound was shaved and cleansed with soap and water. Ether was used to remove the oil which was found on many of the men. Debridement was performed under local anesthesia, using care to remove only truly devitalized tissue; no search was made for shell or bomb fragments, these being removed only when obvious and readily accessible. The wound margins were trimmed sufficiently to prevent overhanging and pocket formation.

The wounds were generously "salted" with sulfanilamide crystals from a salt shaker, and were then covered with a non-occlusive dressing: in our own station this was a thin layer of vaseline on gauze, lightly applied. No attempt was made to close the wounds initially, except in a few cases of incised wounds and a few others in which adhesive tape was used for partial approximation of tissues.

Three or four days later the wounds were dressed again; at this time they were found to contain a grayish slough which could be easily removed with tissue forceps. In many instances, when this was done, a shell fragment could be lifted from the wound. We believe that the gray slough is due to a cauterizing effect of hot metal, rather than to any chemical effect of the sulfanila-

mide. After removal of the slough the wounds had a red, healthy looking base. They were again "salted", dressed as before, and thereafter dressed as infrequently as possible.

The method of delayed suture was not used, once the patients had actually come to surgery, since it was our opinion that, after thorough debridement, primary closure was to be preferred. In most instances the treatment described above was employed initially, followed later by debridement with tight primary closure. It would appear from our results that the "golden period" of surgery has been extended from 6 to at least 72 hours, largely by the early use of the sulfonamides. As to selection of sulfonamide, we can confirm Long's dictum that sulfanilamide is the drug of choice, since we experienced caking of both sulfathiazole and sulfadiazine in wounds in which these drugs were used.

### Plaster Casts

The method used in the treatment of fractures was essentially that of Orr, as modified in Spain and on other war fronts. Compound fractures were first treated in the manner described for lacerated wounds generally. Those which could be reduced were reduced and then placed in casts immediately, and the location of the wound, with a diagram of the fracture, was drawn on the cast with indelible pencil.

Many fractures were badly comminuted, especially those involving joints. These were treated by the use of Steinman pins or Kirschner wires incorporated in the cast. Others showed extensive bone loss in conjunction with large tissue defects. In cases with bone loss we attempted to maintain length in the hope that in some instances there might be enough periosteum left to regenerate the missing bone substance.

Both padded and unpadded casts were used, according to the nature of the wound. We feel that unpadded casts are better in those cases where no window need be cut for dressings. If a window is contemplated, a padded cast should be used since edema will produce less herniation of tissues through the site of the opening in such a cast. We prefer to leave the original cast in

place as long as possible without a window and without a change of dressing, except in case of a rising temperature or the development of unbearable odor, in which case an entire new cast is applied.

Using casts early as a means to secure physiological rest not only aids in the healing of lacerated wounds, but probably saves extremities which, treated by other means, might require secondary amputation. The cast permits elevation of the part and thus minimizes pain, swelling and congestion of the wound. It facilitates early transportation without danger of further injury to soft tissue by bone fragments.

Practically all fracture cases were evacuated to the mainland about 11 days after injury, and we have been informed that of 47 cases of compound fractures which reached one mainland hospital, only 2 had elevations of temperature above normal on arrival.

#### Conclusions

From our experience with war wounds we have concluded that the best method of handling

these cases is (1) soap and water cleansing of the skin, (2) debridement, removing only devitalized tissue and eliminating pockets, and (3) generous application of sulfanilamide followed by a non-occlusive type of dressing. Physiological rest of the part is essential. It is best gained by a plaster cast, whether the lesion be a fracture or a lacerated wound. Dressings should be performed as infrequently as possible, since the danger of introducing infection from without outweighs any advantage that might be gained.

We believe that in time of stress traumatic wounds may safely be treated by use of sulfanilamide and a sterile dressing, with debridement (and primary suture) postponed for as long as 72 hours or perhaps even longer.

Sulfanilamide in crystalline form, which does not need to be sterilized and can be contained in an ordinary salt shaker, is the drug of choice, since it is readily absorbed and does not "cake" in wounds.

LT. J. D. MACPHERSON, M.C., U.S.N.R.  
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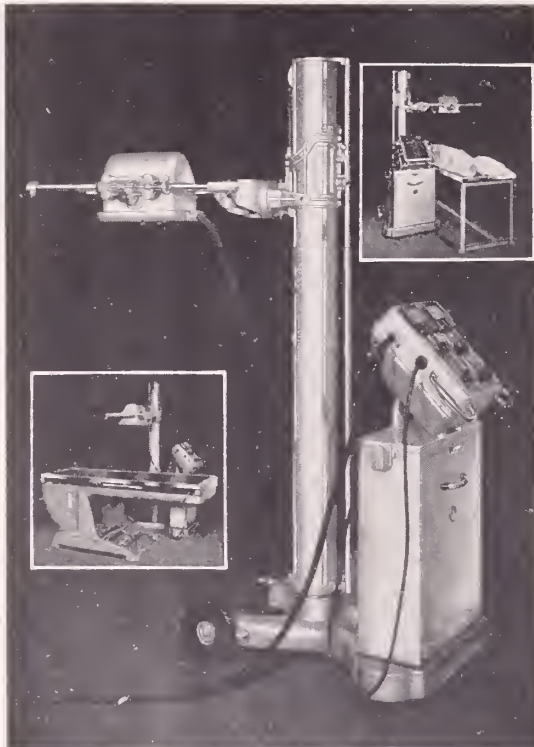
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# CLINICO-PATHOLOGIC COMMENT

## DONORS' CURIOSITY

50,000 blood donors may well ask 100,000 questions, which are succinctly answered by Fowler and Borer (*J.A.M.A.* 118:421 [Feb. 7] 1942). Donation of 555 cc. of blood causes an average drop of 2.3 Gm. hemoglobin (15% in Hawaiian male standard.) It takes about 50 days to replace this. Smaller losses regenerate earlier, and earlier in men than in women. Administration of iron shortens the regeneration time to 35 days.

Routine bleedings should be spaced at 3 months, unless controlled by hemoglobin estimations.

## CLEAR CHOCOLATE AGAR

The favorite medium for growing meningococcus, influenza bacillus and particularly gonococcus (in an atmosphere enriched by CO<sub>2</sub>) has for many years been chocolate agar. It is made by adding to a high grade agar, at about 80°, either whole blood or prepared hemoglobin. At that temperature, coagulation takes place, and the resultant medium looks like chocolate: hence its name. Bacterial growth is excellent, but with contaminants present, reading colonies, without the aid of dyes (or even with them) is difficult because of the opacity of the medium. Now comes the happy thought from Steinberg and Mollor (*J. Lab. & Clin. Med.* 27:656 [Feb.] 1942) of enriching the agar with 0.1% soluble starch, adding the blood at 50°, bringing it then to 80°-85° for coagulation, briefly centrifuging the medium, and using the supernatant transparent portion for cultural work. They say that it is very well able to support the initial growth of meningococcus, influenza bacillus and gonococcus. It is being tried here in Hawaii, but the difficulty is that we have few or no B. influenza or meningococcus cases, and fresh cases of gonorrheal urethritis, in which the culture would be relatively pure, have also become scarce as hen's teeth. We have added p. amino-benzoic acid to the medium, in an effort to work with chronic cases, practically all of which have been under sulfa drug therapy before they become available to the laboratory.

## PLASMA PRESERVATION

Plasma has played an important role in Hawaii recently—and may soon again—and it behooves all of “us Hawaiians” to look a bit more critically at the methods of preservation, and the fractions that are thereby preserved. (However, we must not forget what Col. Moorhead preached —“As an outcome of our round table discussions, we have decided that as a means of combating shock and hemorrhage, whole blood is the method of choice. If whole blood is unavailable, then plasma is the next best. In burns, plasma is to be preferred. We also give saline, with or without 5% glucose.” *Hawaii Med. J.* 1:149 [Jan.] 1942)

Strumia and McGraw maintain that the simplest and best way to make and preserve plasma is to convert citrated blood, by a closed system in a minimum of time, into plasma, pool it to neutralize isohemolysins, and add merthiolate to a 1:10,000 concentration. This is followed by the prompt fixation of the plasma by freezing. It is then stored in the frozen state, in 250 or 300 cc. lots. This method prevents bacterial growth. When the plasma is rapidly melted at 37°, flocculation does not occur, and it may be given unfiltered. This method insures almost complete preservation of all specific elements: prothrombin, e.g., useful in hemorrhage, is preserved at a high level for 50 days or longer. Complement and antibodies are thus also preserved, so that this plasma has maximum usefulness. Plasma made and stored at room temperature is more apt to have contaminants grow. Labile constituents rapidly deteriorate. There is little or no flocculation but it should nevertheless be filtered before use. Its chief, almost its only, value is its protein content.

Plasma made and stored at 4° C—the usual method in Hawaii—preserves its labile constituents in fair quantity for 50 days, but flocculates rapidly. Filtration is essential and chance contaminants may grow.

Besides being indicated in shock (with or without hemorrhage), burns, hypoproteinemias, cerebral edema, and hemorrhagic diseases, plasma, preferably very freshly made, has been advocated



in infections, including the treatment of childhood exanthems.

We once said that we had never seen in the medical literature report of a case that had died of an overdose of plasma; Strumia and McGraw voice the same thought differently—"It may be stated that the amount of plasma usually administered, is smaller than the quantity necessary for best results."

So maybe the goal of 50,000 donors really isn't such a delusion of grandeur as it sounds.

### BLOOD TRANSFUSION EN MASSE

While the virtues of plasma have been ably sung, it remains a fact that for hemorrhage, or hemorrhage plus shock, whole blood is still the choice. If we again have a very large number of high-explosive injuries within a short period of time, it is to be hoped that the Central Bank, or its subsidiaries, could supply ample quantities of whole blood, serologically negative and tested for blood group, either freshly drawn or preserved with glucose by the De Gowin method (28-30 days). The arrival at a hospital of a large number of injured and a large amount of whole blood would throw a heavy burden on the laboratory, which must work at top speed.

Each patient must be typed, and cross-matched with the blood of a selected flask; the latter should have, attached, a tube of its cell suspension. The laboratory should be prepared with a large number of tubes—Wassermann size—in a pair for each patient. One should contain about 5 cc. of saline, the other enough sodium citrate to prevent coagulation of 1 cc. of blood (0.1 cc. of 2% solution of sodium citrate evaporated to dryness). With the usual spring lancet, enough blood may be secured for typing and cross-matching, leaving the precious veins intact for transfusion. Two or three drops of blood in the saline tube are used for determining blood group, which takes about 5 minutes. Into the citrate tube, blood is milked to one half or one cc. There is no delay awaiting clotting; it can be immediately centrifuged, while the grouping is in progress. Blood group having been determined, the supernatant plasma may immediately be used in combination with the cell sample attached to the blood flask for cross-matching. Besides the saving of time, the method has the advantage that, since sodium citrate is anti-complimentary, agglutination is more accurately read, not being obscured by hemolysis.

All this is old stuff, but it may be advantageous to recall it under the present circumstances.

E. A. FENNEL, M. D.



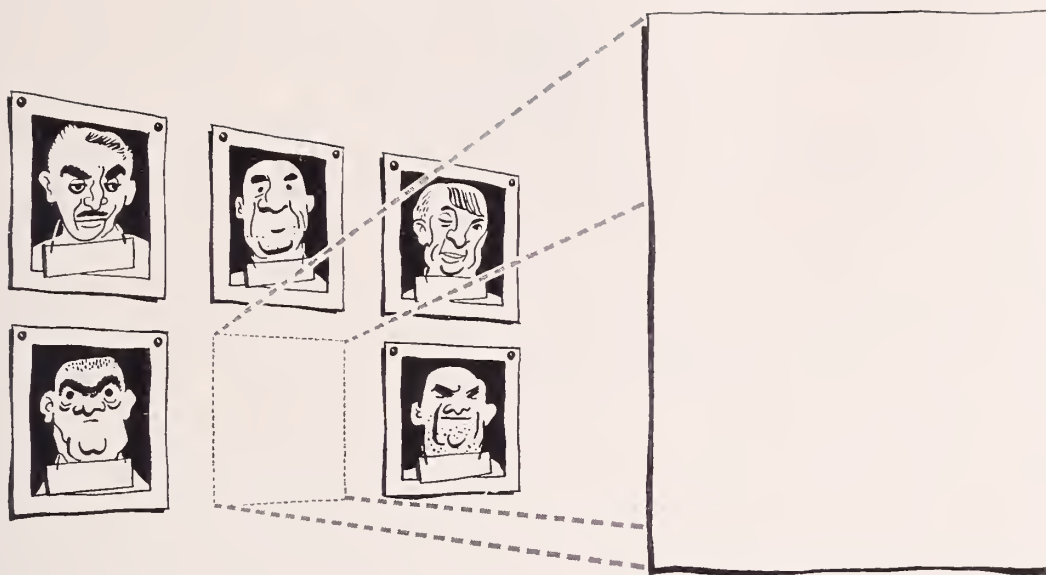
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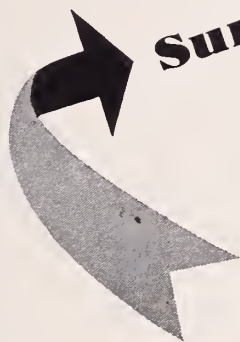
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\*Meyer, E., and Arnold, L. (1938), *Amer. J. Digest. Dis.*, 5:418

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# EMERGENCY MEDICAL SERVICES

(FORMERLY MEDICAL PREPAREDNESS)

## ORGANIZATION

### DIVISION OF EMERGENCY MEDICAL AND RELATED SERVICES

#### TERRITORIAL OFFICE OF CIVILIAN DEFENSE

The broad power delegated to the Governor under the provisions of special M-Day legislation authorizes the establishment and maintenance of essential hospital, medical, first aid, public health and other services which might be required for the civilian population during an emergency. Under this authorization the Division of Emergency Medical and Related Services was established in the Territorial Office of Civilian Defense on January 21, 1942. Dr. M. F. Haralson, Territorial Commissioner of Public Health, was appointed Administrator and was directed to organize the division to provide necessary medical and related services on a territorial-wide basis to function during the existing emergency.

It was clearly recognized that the organization of the division primarily was one of correlation and coordination of services which had already been developed. Existing organizations throughout the Territory under volunteer, private and official auspices had been developed which in a large measure made provision on a volunteer basis for the several services under emergency conditions.

On the island of Oahu, under the leadership of the Medical Preparedness Committee of the Honolulu County Medical Society, emergency medical, first aid and hospital programs had been inaugurated and developed. The Public Health Committee of the Honolulu Chamber of Commerce had established a blood and plasma bank and had provided a number of hospitals on the island with minimum equipment to enable them to supply plasma in time of emergency. In anticipation of the need, the City and County of Honolulu, through the Emergency Hospital, had stocked certain hospital and other medical supplies for possible use. The Board of Health had made provision for services of a public health nature and had obtained additional equipment, supplies, and biologics for emergency needs. On the outside is-

lands the county medical societies had sponsored programs which were developed under appropriate committees with the cooperation of private agencies to provide similar essential emergency medical services. That the organizations on Oahu had been able to function efficiently and effectively was demonstrated under fire—during the enemy attack of December 7.

To coordinate and centralize these activities on a territorial-wide basis in the Office of Civilian Defense, it was proposed to organize the Division of Emergency Medical and Related Services, with two major subdivisions, one for the island of Oahu and one for the outside islands, each to be headed by an executive officer who would supervise and direct the several emergency services under the general direction of the Administrator.

Under the executive officer for Oahu it was proposed that the emergency hospitalization program, the blood and plasma bank, and the first aid and ambulance services would each be directed by a supervisor. For each outside island county it was proposed that a single supervisor would be responsible for the various emergency medical services, and he in turn would serve under the general supervision of the executive officer for the outside islands. In addition to the two major subdivisions, a medical supply officer was proposed who would be responsible for the procurement and distribution of emergency medical and hospital supplies.

In accordance with this plan, Dr. H. L. Arnold, Sr. has been appointed as executive officer for Oahu and has been delegated with the responsibility of administering services for the island. Drs. J. H. Linson, F. J. Pinkerton, and H. S. Dickson have been designated as supervisors of the hospitalization program, the blood and plasma bank, and the first aid and ambulance services, respectively. An executive officer for the outside islands has not yet been selected, but in accordance with the recommendations of the county medical societies, Dr. A. Orenstein has been appointed as the supervisor of all emergency medical services for the County of Hawaii. Dr. R. J. McArthur for Maui, and Dr. V. A. Harl for Kauai.

M. F. HARALSON, M.D.

## EMERGENCY HOSPITALS

The outstanding development in the medical civilian defense program since the last report has been the development of the emergency hospitals. The Wahiawa School is approaching completion of its conversion into a 300 bed hospital and the Sacred Hearts Academy is also almost ready for occupancy. It is proposed to have these two hospitals receive patients as soon as the equipment is adequate to care for them. The financial policy has not yet been published. The Manoa Japanese Language School is being converted into a hospital but will not be operated until and unless exigencies make it necessary. The expansion of the Shriners' Hospital likewise will not function unless conditions compel it.

This program was initiated by Dr. Thomas Mossman, with the assistance of Colonel Fronk, and most of the work so far has been planned by them. The responsibility has now been turned over to the Emergency Medical Services of the Office of Civilian Defense for finishing up this job so well planned and begun.

H. L. ARNOLD, SR., M.D.

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## AID STATIONS AND AMBULANCE SERVICE

The Emergency Medical and Ambulance Service continues the operation of sixteen aid stations in the City of Honolulu and three in the rural areas. Unit No. 1 (Demonstration Unit) is at present inactive, with supplies packed ready to move to any strategic point at a moment's notice.

The past two air raid alarms very effectively demonstrated the efficiency of our volunteer system. All units either had a considerable number of volunteers actually present, or the volunteers had reported by telephone and left word where they could be reached should necessity warrant their services. Reports are not as yet available on the Saturday, March 14, alarm.

The Maunaloa Unit, under the direction of Dr. F. H. Gaudin, has placed three boxes of supplies at strategic points on the Kalaniana'ole Highway, to provide better service to the residents in that locality.

The Waialae Unit, under the direction of Dr. R. Wong, has set up a substation at the Kulamano Studio on Aukai Street. This has been supplied with adequate equipment and staffed with volunteer personnel, and should be able to render considerable service to the residents of Kahala

should an emergency arise. The ambulance service will be taken care of by the Waialae Unit.

The Wahiawa Unit, under the direction of Dr. Timothy Wee, has been allotted additional supplies and has set up twelve substations throughout the Wahiawa district. At the present time a training program is under way, under the capable direction of Mrs. McEldowney, and it is planned to utilize this trained personnel to staff the substations. This arrangement should adequately take care of the situation at Wahiawa.

At the present time plans are going forward for the placing of boxes of supplies at many points throughout other parts of rural Oahu. Supplies to be furnished are to be packed and placed so that they can be opened and utilized, if necessary, by even untrained personnel. Every effort will be made, however, to supplement this measure by making some trained personnel available.

All aid stations are being utilized by the authorities for community projects. So far, this work has not seriously interfered with the training program of the aid station personnel, and any proper requests for public service will continue to receive our utmost cooperation. Aid stations in the vicinity of, or attached to, public schools have been instructed to take care of minor injuries that occur during school hours.

A typhoid immunization and smallpox vaccination program has been carried out in the aid stations and the immunization of practically all the station personnel has been completed. The Kaahumanu Unit has undertaken in addition the immunization of approximately 200 volunteer ambulance drivers. The first immunization dose was given on Sunday, March 8, 1942. In cooperation with the Blood Bank, most of the aid station personnel and ambulance drivers, both regular and volunteer, have been blood typed. The practical experience thus gained by actual performance of such medical tasks should be of considerable benefit to the training program.

The Ambulance Service has now under its control seven specially built ambulances and fourteen converted cars that have been donated and deeded to the Office of Civilian Defense. While this is by no means adequate, the ambulances now enroute, together with the present setup of volunteer trucks, should adequately take care of transportation of injured individuals to aid stations and hospitals. The volunteer ambulances carry printed instructions conspicuously placed, instructing them where to report in the event of an air



raid. This system has been tested and is working smoothly.

It gives me great pleasure to state that in my opinion the Emergency Medical and Ambulance Service will function in a very able manner should a bombing raid place it in action.

H. S. DICKSON, M.D.

## BLOOD AND PLASMA BANK

### Progress Report

*Typing and Serologic Testing.* Up to March 1, 1942, approximately 8,000 persons had been typed. This figure includes the employes of 14 industrial organizations. All blood drawn has been examined serologically by the Wassermann, Kahn, Eagle or Kline test, depending on the varying availability of materials necessary for these various procedures.

*Bleeding Donors and Processing Plasma.* At present 10 units are at work daily on one or both of these tasks.

The total number of donors to date is approximately 5,300. Approximately 3,500 doses of plasma (250 cc. each) are in the bank ready for use. Approximately 1,000 additional doses have been dispensed to patients, making a total of 4,500 doses produced to date.

During the rush period immediately following the "blitz," approximately 42% of the output was contaminated. Of this amount all but about 30 liters has been decontaminated and reclaimed; continuation of the reclaiming process is dependent upon the procuring of five new filters.

All filtered and reclaimed plasma has been tested for toxicity on guinea pigs according to the prescribed methods for the production of biologics. 5,000 cc. of contaminated and reclaimed plasma has been given to human patients without ill effect.

Chemical analysis of reclaimed filtered plasma shows the following results:

<i>Ingredient</i>	<i>Before filtration</i>	<i>After filtration</i>	<i>Normal whole blood</i>
PROTEIN	5.8 Gm.	5.75 Gm.	6-8 Gm.
ALBUMIN	4.2	4.15	4.2-5.4
GLOBULIN*	1.6	1.6	1.6-3.2
CHOLESTEROL	152.00	151.00	140-200
	mgm./100 cc.	mgm./100 cc.	mgm./100 cc.
CHLORIDES	608.00	607.00	570-620
FIBRINOGEN	0.35	0.30	0.4

\* by difference.

To stop some of the loose talk in connection with the Blood Bank, *there has been no loss to date of a single drop of plasma.* The contaminated plasma produced under pressure and adverse conditions has largely been reclaimed and made safe for use, and reclamation of the rest of it is in progress.

At the Central Bank the present rate of contamination is about 1%, which is much less than that reported from other similar projects. This low rate is made possible by trained personnel working under normal conditions with proper equipment and a completely closed system.

The medical profession and the public must realize that the plasma and whole blood in the Bank is to be saved for war and military emergencies, and while it is available for peace-time emergency civilian use, this is permitted only with the understanding that it be replaced by the proper number of donors, or paid for at a rate sufficient to purchase enough blood to replace it.

The foregoing is not intended as a complete report, but only as an informative bulletin and a progress report of the activities of the Blood and Plasma Bank.

F. J. PINKERTON, M.D.

## KAUAI

A special committee, consisting of Drs. Wallis, Harl, Umaki and Boyden, met with OCD co-ordinator Fern at the Wilcox Hospital on February 28th to consider the administration of the federal appropriation of funds for Kauai's civilian defense.

At that time it was expected that from \$100,000 to \$300,000 would be available to Kauai and was to take care of civilian casualties only. Plans also were under way for the Army to use Kilauea, Wilcox, Mahelona and Waimea hospitals for the hospitalization of military casualties, the Army proposing to furnish beds, linens, nurses and orderlies.

The committee was unanimous in its opinion that every effort should be made to have the administration of the Kauai program given to Kauai with full authority and responsibility, and Dr. Brennecke was appointed with authority of the Kauai Medical Society to visit Dr. Haralson, Col. King and Col. Green in Honolulu to accomplish this.

The committee further was of the opinion that if civilian hospitals are used for the care of military personnel such hospitals should be financed by the military authorities.



Regarding plasma preparation, the committee did not approve the fee of \$3.00 to the Wilcox Hospital for each blood donor. This matter to be taken up again after Dr. Brennecke investigates the Honolulu procedure. The suggestion that Dr. Ecklund be paid a fee for his services in connection with the emergency plasma work was also not approved.

WEBSTER BOYDEN, M.D.

### NURSING ACTIVITIES UNDER THE OFFICE OF CIVILIAN DEFENSE

Because of the usual casual acceptance by doctors of the indispensable services of the nursing profession and their habit of making no comment upon their services except those classifiable as "detergent to caustic," no one made reference in the first "war" number of the Journal to the splendid work done by the nursing profession. Only the anonymous author of the Pearl Harbor article alluded to it in passing.

Mrs. David Y. Akana has, therefore, been asked to prepare a report of activities since her appointment on March 2nd as Supervisor of Nursing Activities for the O.C.D.

It is unbelievable how acute the nursing situation had become in the three short months since the war started and what new problems developed out of the civilian defense activities. First of all, there has been created a definite shortage of nursing power in the Territory, due to several factors. First-reserve Red Cross nurses were called to active duty, and in many instances these were women holding key positions in the civilian hospitals. With the evacuation of the military casualties to the mainland, a large number of civilian nurses were called upon for convoy duty, and many of these were not returned because transportation could not be provided for them. Wives of Army and Navy personnel have been evacuated or have accompanied their husbands upon transfer. The aid stations, formerly staffed by volunteers, have required the employment of 40 full-time nurses. Civilian nurses have been drawn on to staff the Army's provisional hospitals at St. Louis College, Kamehameha School, and the dispensaries of the industrial and defense projects' clinics. Assignments have been made impossible for those nurses who have children at home, due to the lack of domestic help formerly available.

The shortage of nurses thus created has been felt most keenly by the civilian hospitals. Queen's had a shortage of 35 nurses, Kapiolani 18, Leahi

8, Children's 8 and St. Francis 8. The needs of the newly converted Sacred Hearts and Wahiawa hospitals had to be faced. The number of nurses available for private duty shrank from 90 to 60 in one month. The actual increased load on the public health nurses, as well as the anticipated additional responsibilities to be placed on them as a result of the contemplated immunization program and evacuation plans, made additional workers among these necessary.

The Military Governor issued a "freeze" order, effective December 7, 1941, making it impossible for nurses to leave their present jobs, or the Territory, unless a substitute was available, or there was other good and sufficient reason for their release. It is not necessary to explain situations which naturally arose as a result of this action.

After a preliminary survey of existing conditions with the assistance of the superintendents of nurses of the various hospitals, the Hospital Association, the Bureau of Public Health Nursing, the Hawaii Chapter American Red Cross, and the Territorial Nurses' Association, with its Nursing Service Bureau, steps were taken as follows:

- 1) A program of recruitment was undertaken. Through newspaper and radio appeal on the mainland, it was attempted to call 150 nurses from all parts of the United States. A sum of \$30,000 was set up by the O.C.D. to cover the transportation, overland and sea, for such nurses, and to pay the salaries of those recruits who would be designated for special work by the O.C.D. The help of nursing placement agencies on the West Coast, the East Coast and Chicago was enlisted for this purpose, and to date 101 recruitments have been made. The Commandant of the 12th Naval District has been most cooperative in giving transportation to these recruits.

- 2) A plan was outlined for cooperation between the Army and Navy and civilian nursing agencies governing the release and evacuation of civilian nurses, with definite agreement that transportation will not be granted any nurse without the knowledge of and a clearance from the Supervisor of Nursing Activities of the O.C.D. office.

- 3) Personal problems of nurses were considered with a view of helping to strengthen morale.

This progress could only be made by reason of the splendid cooperation given by the various organizations concerned, and it is, I believe, ample proof of the value of good organization during peace time.

Supervisor of Nursing Activities, O.C.D.  
(Mrs.) David Y. Akana,

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# COUNTY SOCIETY REPORTS

## KAUAI COUNTY MEDICAL SOCIETY

A luncheon meeting was held at the Lihue Hotel, January 14, 1942. All resident members were present. Major Leach and Major Wessling were guests.

There was no regular December meeting, and since that time Drs. Wade and Ecklund have been called to active duty from the Naval Reserve.

Because of the "blackout" and extra work of all members in preparedness activities, it was voted that future meetings be held bi-monthly and at noon, on second Wednesdays, special meetings being called as required.

The secretary was instructed to obtain the notes on lectures given by Dr. Moorhead during his December visit in Honolulu.\*

Plasma preparation and storage was considered. Dr. Kuhns has been appointed to direct this work. The membership believed it advisable to continue the preparation of 250 cc. quantities to be diluted when used and to be stored in suitable refrigeration units at three or four different points on the island.

It was the opinion of the majority that the Red Cross arm bands should be used by all first aid and medical personnel. Some believed that graduate nurses should wear "RN" insignia and the doctors "MD".†

After further general discussion of various topics the meeting adjourned.

WEBSTER BOYDEN, M.D., reporting.

## MAUI COUNTY MEDICAL SOCIETY

The regular meeting of the Maui County Medical Society (annual meeting) was held on Feb-

ruary 16, 1942. The meeting was called to order by Dr. Anderson, Secretary.

Members present: Drs. K. Izumi, R. McArthur, E. Anderson, G. von Asch, E. Kushi, T. Kanda, W. Patterson, H. Seiler, K. Jones, William Osmers, A. Rothrock, G. Lightner, W. Dunn, and J. Sanders, guest.

Election of officers: The following were elected: Dr. R. J. McArthur, Wailuku, President; Dr. H. H. Seiler, Paia, Vice-President; Dr. William Osmers, Wailuku, Secretary-Treasurer.

The following were elected to membership in the Society: Dr. Lewis E. Shapiro, Pukoo, Molokai; Dr. William H. Wilkinson, Lanai City, Lanai; Dr. Douglas Murray, Paia, Maui; and Dr. Hawley H. Seiler, Paia, Maui.

The following receipts were entered and deposited with our checking account as of this date: Dr. Robert Benson, \$20.00; Dr. William Patterson, \$25.67.

Meeting Adjourned.

Meeting of the Board of Governors, March 2, 1942. Dr. McArthur presided. Present: Drs. Dunn, McArthur, Seiler, Osmers, Lightner and Kusumoki (guest).

It was suggested that instead of an annual meeting of all members of the Territorial Society for the year 1942 a meeting of only the House of Delegates and the Council be called and that if possible the Honolulu County Society hold its meeting at this time in order that visiting members from the other islands might be present to listen in at such discussions as might be of interest to members of the entire Territorial Association.

Dr. Lightner moved that, in the event such a meeting of the Council and Delegates is held in place of an annual meeting of the entire Association, the expenses of our Councillor and Delegate be paid by our Society. Seconded by Dr. Dunn and carried.

Meeting adjourned.

WILLIAM OSMERS, M.D., reporting.

\* Note: Only official medical O.C.D. insignia are now permitted on arm bands for use by civilian medical or nursing personnel; the American Red Cross has withdrawn its arm bands from circulation.

† Editor's note: these have since been published, in the January issue of THE JOURNAL.

## HAWAII COUNTY MEDICAL SOCIETY

Medical Society meetings have been held January 18th and February 14th, in the afternoons because of "black-out" restrictions and the difficulty of travelling after dark. These meetings had a better attendance than the majority of our previous meetings as the physicians have been vitally interested in the discussions and in the solution of problems of civilian medical defense. The civilian defense committee has done a great deal of work and has accomplished much in preparing to meet any emergency which may arise. Benefitting from the experience gained in Honolulu on December 7th, this committee has been able to intelligently organize a plan for this island should such an event happen to Hawaii.

Knowing that one man was going to be appointed to control all such activities, the society has recommended one of its members for the important post. Dr. A. Orenstein was the society's recommendation as the proper man for the job. Since he is well qualified, knows the problems of this island, and will have the full cooperation of all the physicians, his leadership should insure the maximum of efficient preparedness.

Because of the increase in venereal disease cases, the society has recommended a more vigorous control and check of such cases. Working in conjunction with the Board of Health and the military authorities, certain rules and regulations have been adopted to cope with the problem. In brief, these aim to discover the source of the infection; insure adequate treatment of cases found and compel necessary treatment, if need be, while in the infectious state; prevent travel of infectious cases from one district to another; have definite criteria for non-infectiousness of a case; and have all cases released only by the venereal disease clinic or other recognized governmental agency. It is felt that the problem can thus be better managed and controlled without working a hardship or interfering with any physician's practice.

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On February 8, 1942 the Society met with Lt. Col. Woodruff of the Army and discussed at length the venereal disease problem. It was decided to refer this entire matter to a committee, which would report at the February 14 meeting of the Society. At this latter meeting the committee composed of Dr. Arimizu and Dr. C. L. Phillips rendered its report which was accepted

with minor changes. The U. S. Army has approved this report and it now constitutes the rules by which members of our Society are to be guided in all venereal disease cases. The report is as follows:

### *Report of the Venereal Disease Committee*

- I. All cases of venereal disease must be reported immediately to the Board of Health. The source of infection and contacts must be diligently inquired into and also reported so that adequate measures may be taken to prevent the spread of the disease. (It would facilitate matters for the Board of Health if physicians would state whether the case is indigent or not.)
- II. All cases suspected of spreading venereal disease or delinquent in treatment must be isolated.
- III. When a case is considered non-infectious by the attending physician, final clearance can be given only by the Venereal Disease Clinic or other recognized governmental agencies.

Criteria for non-infectiousness:

#### 1. Gonorrhea.

##### Males:

- a. Freedom from discharge.
- b. Clear urine, no shreds, or shreds negative for gonococci.
- c. The pus expressed from the urethra must be negative for gonococci on two successive examinations at intervals of not less than forty-eight hours.

##### Females:

- a. No infective vaginal discharge.
- b. Two successive negative examinations for gonococci of the secretions of the urethra, vagina and of the cervix, with an interval of at least forty-eight hours.

#### 2. Syphilis.

Cases of syphilis shall be regarded as communicable until under treatment all lesions of the skin or mucous membrane are completely healed and a competent clinical examination shows the absence of any area from which infectious matter can be disseminated.

- IV. All smears, cultures and serologic tests shall be done at the Hilo Memorial Hospital or Board of Health laboratory. Physicians in the outlying districts may run their own tests if there are adequate laboratory facilities, but the final release must come from the Venereal Disease Clinic or other recognized governmental agencies.
- V. All infectious cases in the outlying districts should be restricted to their respective districts until considered non-infectious by the attending physician. Final clearance must be obtained from the Venereal Disease Clinic or other recognized governmental agencies.

The 202nd monthly meeting of the Hawaii County Medical Society was called to order at 10:00 a.m., Sunday, January 18, 1942, at the Hilo Memorial Hospital. There were 23 members and 2 guests present.

Dr. Patterson reported that the Hawaii County issue of the Journal would be postponed to allow the next issue to be devoted to papers from the Honolulu physicians on their war experiences. He requested additional papers from the members for inclusion in the Hawaii County issue.

Dr. Keay read the minutes of the medical defense committee's previous meeting. A clarification of the committee's functions and responsibilities was requested. Major Mayfield stated that the Army was prepared to take care of its own casualties and that this committee should continue to function under W. H. Hill during the emergency. Major Mayfield also reported that the Hilo Red Cross has started to work on surgical dressings.

The application of Dr. Yamanoha for membership was approved by a vote of 16 to 2.

Dr. Sexton reported on his recent trip to Honolulu and made recommendations to meet an emergency such as occurred in Honolulu. He pointed out certain shortcomings, such as the lack of preparation for complete blacking out of Queen's Hospital; the confusion of outside workers in trying to assist during the emergency which caused difficulty in giving intravenous treatments or bedside care to casualties; the necessity for dividing the hospital into sections and classifying and sorting the casualties for these sections. He submitted an outline of suggestions and recommended that Hilo Hospital: 1) evacuate all possible cases from the hospital for home care; 2) appoint teams immediately and train assistants to work with each team; 3) invite Dr. Halford to Hawaii to demonstrate burn treatment technique; 4) obtain more sterile surgical dressings.

It was voted that Dr. Halford be invited to Hawaii to instruct us in burn and shock treatment, and to bring all possible supplies such as sulfadiazine solution and tablets.

Our guest, Colonel Smock, gave a short talk on the Army's position and what the Medical Corps was attempting to do.

Meeting adjourned at 11:30 a.m.

EDMUND TOMPKINS, M.D., reporting.

The 203rd monthly meeting of the Hawaii County Medical Society was called to order on February 14th, 1942, at 3:00 P.M. at the Hilo Memorial Hospital. There were 23 members present.

Dr. Yamanoha's election to membership was ruled irregular and his application referred back to the Censorship Committee for further consideration.

A report of the medical defense committee was called for and Dr. Keay stated that at the present time although the committee had been functioning up to date, it did not know its position or standing for the future as there had been some talk of the appointment of a civilian medical director for the entire island. This appointment would come from Honolulu and probably be made by Dr. Haralson. Dr. Crawford felt that this Society should have a word in choosing the person as full cooperation would be necessary from all physicians. He also reported that he had received a \$5,000.00 allotment for the month of February for the medical civilian defense work, to date about \$3,000.00 had been spent. Thus, our main difficulty has been solved—that of obtaining money to procure necessary materials and equipment. The status of the expenditure of this money is not exactly known until the return of W. H. Hill who is conferring in Honolulu at the present time. Dr. Phillips was against having paid physicians or paid first-aid workers if some other way could be found to accomplish the necessary work. Dr. Sexton stated that it appears as if one man were going to be appointed by the civilian authorities to be in command of all civilian casualties on the island, he proposed that we decide on a man to recommend as a society and suggested Dr. Orenstein. Dr. Crawford suggested that a meeting be called to discuss this question. In view of the supposed need for immediate action, however, the general feeling was that definite action be taken at this meeting. Dr. Rice moved, seconded by Dr. Phillips, that the Society recommend Dr. Orenstein to act as civilian medical director for Hawaii. The motion was passed, 12 yes and 8 no. Dr. Eklund stated that undoubtedly many of the negative votes cast were for Dr. Orenstein but against this way of doing it. Considerable discussion followed and it was moved by Dr. Roll and seconded by Dr. Phillips that a vote of confidence be taken for Dr. Orenstein. This motion was amended by Dr. Chang that all other absent members be contacted and informed of what has taken place and ask for an



expression of their confidence. This motion and amendment were passed unanimously.

As there seemed to be considerable dissatisfaction and discussion, it was moved by Dr. Sexton and seconded by Dr. Crawford that a special meeting be held Sunday, February 15th, for a reconsideration of the question, with all men being notified so that they would have a chance to vote. This was amended by Dr. Crawford, seconded by Dr. Patterson, that the secretary be instructed to contact each man and ask them to select a member as their choice to be head of the medical division of civilian defense and to so instruct the secretary. The man receiving the most votes was to be elected. Motion and amendment were passed.

Meeting adjourned at 5:30 P.M.

EDMUND TOMPKINS, M.D., reporting.

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## HONOLULU COUNTY MEDICAL SOCIETY

Summary of meetings, January thru March 1942.

A change in procedure has been made necessary for the regular meetings of the Society due to blackout and difficulty of night driving. Instead of the general evening meeting on the first Friday of every month the society now meets weekly at 9:00 a.m. on Thursday mornings in the Mabel Smyth Building auditorium. It has been necessary since the Blitz to have the doctors assemble at frequent intervals to keep informed of current plans and procedures under the emergency program, and to enable them to act as a group in deciding questions of group policy. To facilitate this it was agreed to combine the regular Thursday morning clinics of the Queen's Hospital with the meetings of the society, the society taking the time from 9 to 9:30 for announcements, discussions, and necessary action in emergency issues as they arise, and Dr. Hirsch taking over thereafter for an hour for clinic presentations.

This has so far worked out very well and entirely to the satisfaction of the medical society, with an attendance of rarely less than 80 persons. A special committee of the Board of Governors meets every Wednesday morning to plan the proceedings of the Thursday morning meeting, and any matters any member wishes to bring up for consideration should be in this committee's hands before Wednesday.

The Board of Governors has continued to meet as before on the first Friday of the month, as prescribed by the by-laws, and at such other times as the business of the society requires it.

The society has endeavored wherever possible to set itself up as a distribution center for the convenience of the doctors. In this manner gas masks, passes, liquor permits and gasoline ration coupons have been handled.

The major concern of the society recently has been the program, proposed by the Army, of immunizing the entire island population against typhoid, paratyphoid, and smallpox. Immunization of the rural areas was carried out almost entirely by Board of Health personnel but when it came to the 200,000 population of the City of Honolulu the plan encountered an immense problem in medical personnel to carry it out. It was proposed to the society by Dr. Arnold, in his capacity as Director of the Emergency Medical & Allied Services of the O.C.D., that the public be given an opportunity to have these immunizations done by their private physicians wherever possible, prior to the date set for the mass immunization program, and it was also proposed, instead of a much higher rate set earlier in the year, that the society adopt a fee of \$1.00 per injection. This was approved by the general membership at the Thursday morning meeting of March 5th.

At the meeting of March 18th the membership further accepted the recommendation of Dr. Arnold of \$15. for an afternoon of four hours, to be paid doctors aiding the mass immunization program, starting March 30th. This action was won by a small majority despite a contrary recommendation made jointly by the Board of Governors and the Committee on Forms of Medical Practice, to the effect that doctors should be compensated at the rate of \$10. per hour whether for mass immunization of employees in industrial plants, or the general population at aid stations during the immunization campaign.

The rate of \$10. per hour for immunization in industrial and commercial plants was unanimously accepted by the membership.

A report is given regularly at the Thursday morning meetings by Dr. Enright of the Communicable Disease Bureau of the Board of Health, on the current communicable disease status of the community. Considerable time has been given by him lately to the immunization program. He gave information on the intradermal technique and

dosage. He commented on the epidemic of "pink eye" in the western states, cautioning doctors to be on the lookout for it in defense workers coming to Hawaii. He reported, on March 26th, 53 positive cases of typhoid fever out of a possible 60, all from one school, and traced to a human carrier. Dr. Haralson asked that cases be hospitalized at the U. S. Army Provisional Hospital #2, at the Japanese Hospital.

The Board of Governors has been very vigilant and has exerted pressure in the matter of violations of the Medical Practice Act in an attempt to protect the community against unlicensed physicians; it has voiced objection to aid stations under the O.C.D. being used as obstetrical stations or practicing medicine, and has had the ready cooperation of Dr. Arnold in not allowing such practices to grow up; it has been perhaps

are under consideration by the Board of Governors, as well as a special contract for defense worker groups. Nothing definite is ready for report at this time.

Charges that insurance companies were directing industrial accident cases to certain physicians caused the Board of Governors to appoint a special committee to investigate and make recommendations. This committee's report of March 5th is quoted here:

Dr. Donald Marshall was appointed to the Territorial Nutrition Committee and Dr. Ernestine Hamre was given the endorsement of the Board of Governors in her appointment to the Advisory Committee of the Hawaii Chapter of the American Red Cross.

New members admitted into the Society were

The special committee composed of Drs. Strode, Chang, Bell, Molyneux, Pinkerton, was appointed by your President, Dr. Gaspar, to investigate charges from numerous patients and doctors that certain insurance companies were directing their insured industrial accident cases to certain individual doctors.

Three meetings have been held and each member of the committee has taken upon himself certain investigative phases of the study. Several officers of the insurance company in question were interviewed and found to be most cooperative and willing to clarify an issue that appears to have happened without their knowledge or direction.

Our findings indicate that in certain instances directors of personnel have without instruction or authority directed and demanded that ill or injured employees were to be sent to certain doctors not selected or desired by the employee. With this finding, the insurance company denied any responsibility. The insurance company advised your committee that when a policy is written by them for a group of employees, the completed policy is sent to the employer together with a roster of nine

individual physicians or groups, the total of the nine selections being made up of some 30 individual physicians. It is maintained by the insurance company that this procedure does in fact give the employee a wide choice of physician in keeping with the intent of the act providing "free choice of physician."

It appears to your committee that the irregularities reported have been the acts of self-appointed overzealous employers or personnel directors to steer patients in the direction of certain physicians and when such is done the same is without the sanction or direction of the insurance company. It also appears to your committee that this practice is widespread and common, and that we are officially without power to control such practice. We have, however, the assurance of the insurance company contacted that such practice is not their desire or wish and that they will take every possible step to prevent and stop such practice.

Your committee, therefore, recommends that further inquiry in this direction be continued and that this committee report from time to time follow-up on the project which it was assigned to investigate.

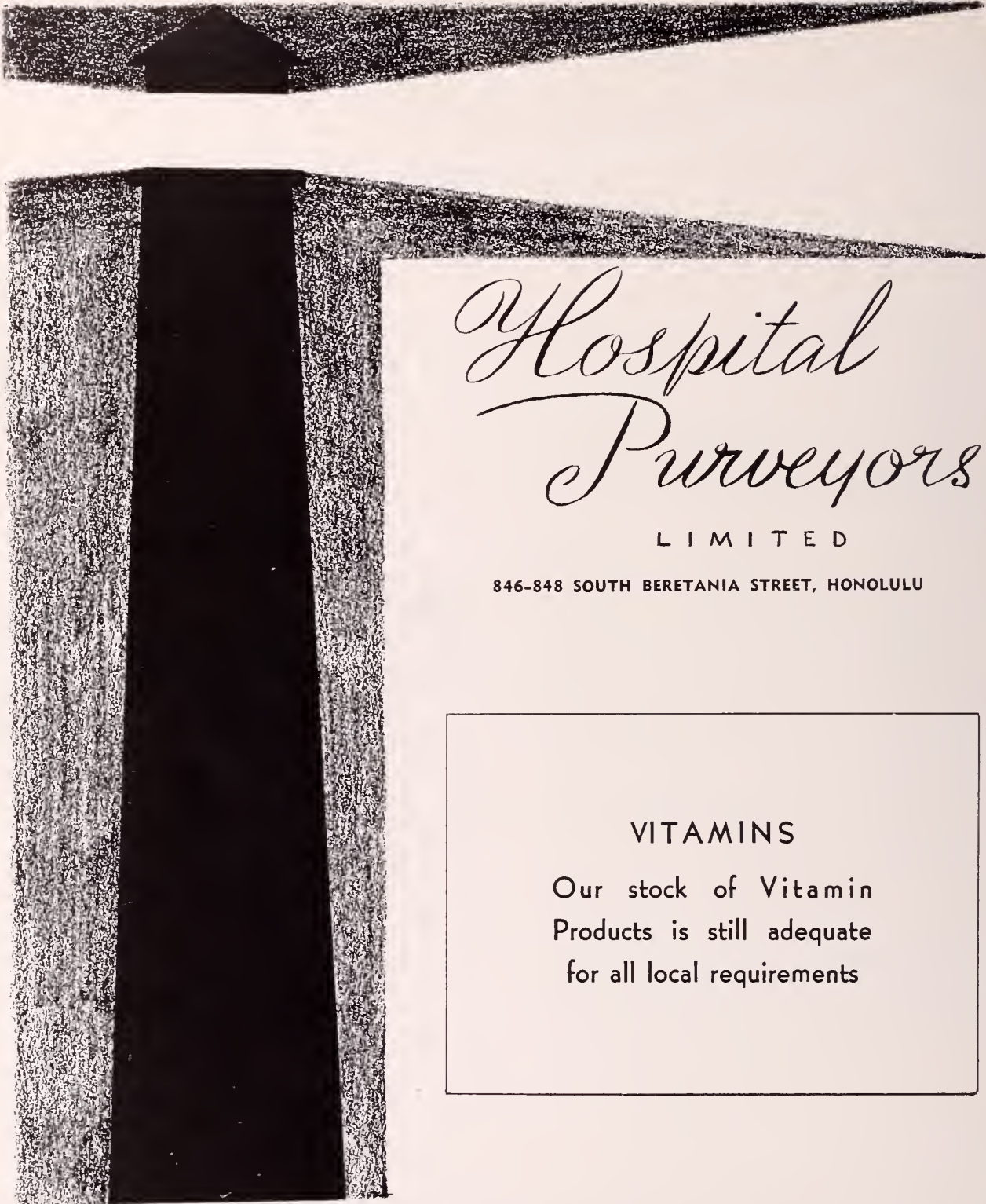
unnecessarily insistent in asking clarification of the status of enemy aliens employed in aid stations, but this has resulted in a clarification of the status of Korean aliens as being non-enemy.

In anticipation of the renewal of contract between the H.M.S.A. and the medical society, some minor changes suggested by Mr. Bowman

Dr. Robert H. Fishback who comes from Seattle to the Board of Health to supervise venereal disease work; Dr. Harry T. Hollman, who was formerly a member of the Society, and Dr. W. H. Requarth (Service Member), stationed at the Naval Hospital, Pearl Harbor.

ELIZABETH D. BOLLES, reporting.





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# NOTES AND NEWS

## Journal Issues

The next two issues of THE JOURNAL (May and July) will be the responsibility of the Maui County and the Kauai County Societies, respectively. The editor for each island—Dr. K. P. Jones for Maui and Dr. Samuel Wallis for Kauai—will be planning his society's number. Articles and news items should be submitted to him for acceptance *not later than the first of the month preceding the month of publication*. This does not restrict anyone from sending to the office of THE JOURNAL in Honolulu material and suggestions at any time. Local news of possible interest will be gratefully received.

## To the Editor:

Dr. Moorhead states, "depressed fractures of the skull need nothing done immediately". In some simple depressed fractures, i.e. with no laceration of the overlying scalp, that are located in "silent" areas of the brain, this statement may be tenable. However, the majority of depressed fractures of the skull are compound wounds with laceration of scalp, dura and brain. These wounds, of all the wounds of the body, require *immediate* operation. Every minute lost before the wound is cleaned out and closed gives the bacteria just that much of a head start for the development of a meningitis.

"With foreign bodies", Dr. Moorhead says, "do not go in immediately unless there is some reason for it". This may be good advice for other parts of the body but not for the brain. When a metallic foreign body crashes through the skull it carries with it hair, dirt, and fragments of bone. The brain, in comparison to other tissues of the body, has little resistance to infection. It is therefore essential that these wounds be operated upon immediately and even if the foreign body itself is inaccessible, a thorough debridement of its path through the brain will prevent infection and hemorrhage.

In the matter of placing drains in wounds of the head—the general surgeon (Dr. Moorhead) advises their use, the neurosurgeon says NEVER, in a clean wound (i.e. one treated within 48 hours

## NEW MEMBERS

### Maui County:

WM. W. WILKINSON, Lanai City, Lanai.

LEWIS S. SHAPIRO, Pukoo, Molokai.

DOUGLAS MURRAY, Paia, Maui.

HAWLEY H. SEILER, Paia, Maui.

### Honolulu County:

ROBERT H. FISHBACK, Bd. of Health, Honolulu

HARRY T. HOLLMAN, 1124 Milier St., Honolulu

W. H. REQUARTH, Service Member, Sub Base, P.H.

## PERSONALS

DR. BRENNECKE has left Koloa to become director of medical affairs at Kekaha and Waimea, on Kauai.

DR. BECK left Kealia to replace DR. BRENNECKE at Koloa and, for the present at least, DR. SAM WALLIS has taken over DR. BECK's work.

DR. BALFOUR is looking for an assistant to fill DR. MEYERS' place on May 1st when DR. MEYERS goes on active duty with the Navy. Details may be obtained from our Secretary.

If you have any medical journals six months to a year old that are gathering dust, will you notify Captain Corby at 67987. He is interested in distributing them to the medical officers stationed on the islands.

The films "First Aid Treatment in Fractures of the Lower Extremities", "Transportation of Fractures of the Extremities" and "Transportation of Fractures of the Spine" originally sent down on loan by Dr. Kellogg Speed of Chicago, are now available indefinitely. On writing Dr. Speed requesting permission to hold them over for showings to fire wardens, police and first aid personnel, he hastened to reply: "Please keep them for use for instruction in the Hawaiian territory with my blessing and as a contribution to your defense efforts. May I hope that other medical societies may profit by them."

Recently an appeal went out to all new members and the few doctors who had not made a contribution to the Mabel Smyth Building fund, urging that they assist in clearing the small deficit of \$3900 still hanging over our heads. DRs. S. MIYASAKI, LEON S. MERMION, ROBERT T. WONG, ROBERT KATSUKI, RICHARD SIA, H. UCHIYAMA and ROBERT H. LEE made substantial contributions, for which those of us who must see this debt wiped out are most grateful.

DR. DAVID W. MORGAN who left the Mental Health Bureau to study with Dr. Ebaugh writes: "The very excellent format of the new HAWAII MEDICAL JOURNAL has finally come to our attention in Denver and we send many fond alohas for its success".

DR. PERRIN LONG, during his flying visit to Hawaii right after the Blitz, made a very pertinent suggestion: that wherever possible it be arranged to have surgical and other teams spend half a day in each of the hospitals into which they might be called upon to operate in time of emergency, getting a line on the set-up and the equipment available, meeting the supply officer, and in general getting acquainted with the place.

DR. CHARLES NEWTON, exchange obstetrical resident at Kapiolani Hospital since last June, left the Territory with his family the latter part of December. He was replaced temporarily by Dr. E. G. EDGAR, U.S.N., who has just been relieved by Dr. DANIEL KOBLI, U.S.N.

DR. R. T. TREADWELL of Kohala, Hawaii, was caught away from Hawaii when the war broke and is still in Oakland, California.

DR. WALTER F. MACKLIN has been called into service with the Army and is stationed at Tripler General Hospital.

DR. W. FULTON HUME, a recent member and for a short while associated with the Medical Group specializing in surgery, has gone on to the coast.

DR. ALFRED BURDEN has been called into the Army and has recently left for the Coast for a period of training.

DR. O. LEE SCHATTENBURG's paper on "Ectopic Pregnancy in Hawaii", given before the 1939 Annual Meeting of the Territorial Medical Association, appeared in the October issue of the Western Journal of Surgery, Obstetrics and Gynecology. Dr. Schattenburg's paper given before the Dental Society Annual Meeting, "The Obstetrician Looks at Dentistry" has been accepted for early publication in the Journal of the American Dental Association.

DRS. DOUG. MURRAY, TOM COWAN, AL BURDEN and JIM FLEMING all from Maui are now in the service. Dr. ANDERSON expects to be called soon.

Temporary moving of tuberculosis patients to homes and other hospitals because of the water situation gave Kula Sanitarium some excellent evacuation experience. All doctors were most cooperative in receiving patients. However, some bad results on patients have already been seen and more undoubtedly will be seen in the future.

CHAIRMAN LIGHTNER of the Blood Bank reports 330 units now on hand on Maui. A large amount of typing has been done.

As Winchell puts it—the SEILERS are "three-ing" soon.

The Maui Society extends sympathy to the McARTHURS on the loss of their baby boy by an acute lung infection.

DR. JOHN SANDERS, who has been doing survey work at Kula Sanitarium will be with the Paia Hospital in the future.

DR. STEELE STEWART has just arrived from Los Angeles to take over the Shriners' Hospital. In 1939 Dr. Stewart lectured to the Society here on orthopedics. He is a graduate of Penn., 1918.

after the injury). The only reason a drain is stuck in the wound is for the escape of blood—hemorrhage which has not been arrested. Of all the wounds of the body in which absolute hemostasis is essential, head wounds are among the most important. If the hemostasis is complete and the field dry, there is no need for a drain. It will only act as an open gate for infection to enter, and, if placed through the dura mater, for cerebrospinal fluid to escape. It is an unwritten axiom with neurosurgeons that no head wound should be closed until all bleeding points have been completely arrested, whether it takes 5 minutes or 5 hours. This is why we do not use drains.

Lastly, I am sure Dr. Moorhead did not intend to leave the impression he apparently did in regard to the closure of wounds of the face and head. He was so intent on putting over his method of "primo-secondary closure" of traumatic wounds that he neglected to stress the fact that this delayed method of wound closure *does not* apply to wounds above the neck, and should *never* be used. The rich vascular supply in the skin of the face and scalp is a protection against infection and is conducive to rapid healing. If the ragged edges of the wound are cut away and the clean sharp edges sutured tightly with two layers of fine silk, the wound will *heal completely* in three or four days without infection or scar. The use of a sulfa-drug powder is not necessary if the wound is carefully cleaned and debrided.

I was called in consultation recently to see a child who had received a head injury three days before. Upon removing the dressing I found a large gaping wound in the scalp of the forehead extending from the eyebrow to the hair line. The wound edges were ragged and irregular. Blood clots and sulfa-powder filled the wound. Four loose untied sutures extended from its edges, all ready to be "pulled together on the third day". I shuddered to think of the hideous scar on the little girl's face that would result from this method of treatment. I am sure Dr. Moorhead would not object to having his teachings clarified if this is an example of the false impressions he must have given in the treatment of head wounds.

Young Hotel Building  
March 30, 1942

### Communications

Messages commending the civilian medical profession of Honolulu for the part its members played in caring for persons wounded in the attack of December 7 have been received from a number of sources by the Honolulu County Medical Society. Apparently Col. John J. Moorhead

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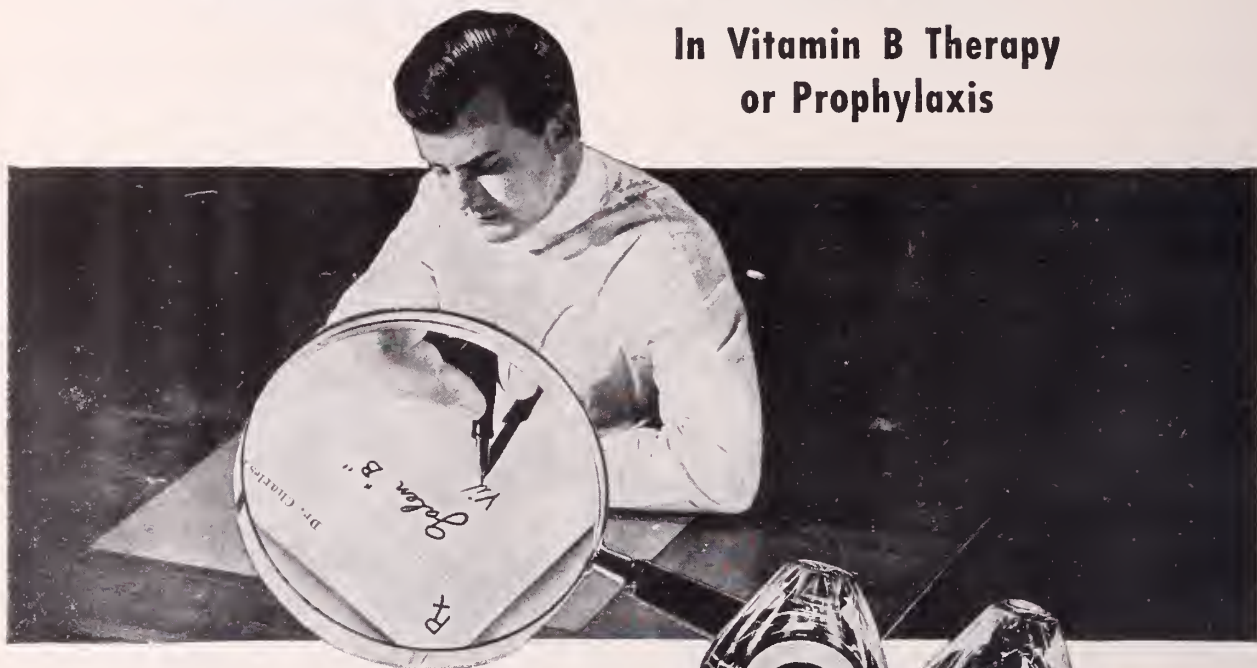
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of New York City, who was addressing Honolulu physicians on war injuries at the Mabel Smyth Building when the attack was in progress, and who with local doctors responded to the call for professional help, has told the story of medical activities here before various groups of doctors on the Mainland, and his words prompted the messages.

The following is a cable message from George G. Orenstein, president of the New York University Medical Alumni Association:

HONOLULU MEDICAL SOCIETY  
HONOLULU  
WE HAVE JUST HEARD FROM COLONEL MOORHEAD OF THE SPLENDID WORK THAT WAS DONE BY THE CIVILIAN DOCTORS AT TRIPLER HOSPITAL DURING THE ATTACK ON PEARL HARBOR AND WE WANT YOU TO KNOW HOW PROUD AND APPRECIATIVE WE ARE  
GEORGE G. ORNSTEIN PRESIDENT  
NYU MEDICAL ALUMNI ASSOCIATION

The President of the New York Academy of Medicine writes as follows:

"The Fellows of the New York Academy of Medicine have recently had an opportunity of learning at first hand and in detail from Colonel John J. Moorhead of the remarkable piece of work that your organization did on December 7. The Council and Trustees of the Academy would like to acknowledge their great appreciation of this accomplishment. You have written something vastly worthwhile into the recent history of the medical profession."

From the professional staff of the North County Community Hospital of Glencove, N. Y., comes the following to the Honolulu profession:

"At a meeting of the North County Community Hospital, Glencove, N. Y., on March 9, 1942, addressed by Colonel John J. Moorhead of New York City, the following resolution was unanimously adopted by the professional staff of the hospital and ordered to be forwarded to your society:

"Resolved that the members of our staff wish to express through the Honolulu County Medical Society to the civilian physicians of Honolulu our deep appreciation of their skillful and untiring care of battle casualties among American seamen and soldiers on December 7. It is evident from the excellent results obtained that the care administered was prompt, painstaking, and marked by skill and good judgment."

DR. R. B. CLOWARD has the distinction of having the first article on war experiences in Hawaii appear in a mainland Journal. The January 24th issue of the A.M.A. carried his paper on "War Injuries of the Head," and a subsequent issue of Time commented extensively upon it.

DR. "PETE" HALFORD had a record attendance of doctors and nurses for his recent Sunday morning lecture on the treatment of burns.

DR. HAROLD SEXTON, house doctor at Queen's, and Miss Audrey Boyton of Oakland, California, were married on Sunday, March 15, at the home of his parents, Dr. and Mrs. L. Sexton in Hilo.

DR. ERNESTINE HAMRE spent two weeks on Hawaii at the request of Medical Preparedness Committee to give instructions in first aid. Three classes of instructions were held, meeting morning and afternoon. Each class met for three hours six times a week. 58 candidates completed the course. One advanced course was completed by ten students. The instructors' class was composed largely of men and women in active teaching positions, others had had teaching experience. Businessmen, nurses, police officers were well represented.

### Good Hospital Care

The American College of Surgeons announces a new motion picture film produced by it in co-operation with the Petrolagar—16 mm, 2 reel, sound on film, time 25 minutes. It portrays scientific medicine and modern hospital care, and gives a brief outline of the growth and development of Hospital Standardization. Charge express both ways, plus \$1.00 laboratory charge for checking and repairing film.

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### January Issue Oversubscribed

Orders for the January issue of THE JOURNAL exceeded our provision of 500 extra copies by over 200. At this writing 400 additional copies are ready to fill these and other orders.

### MAINLAND GROUP MEDICAL INSURANCE

Group medical insurance has been recognized by the majority of the state medical societies as a public necessity. Consequently, there is much activity among the various medical societies in providing such protection.

Having recently completed a business and pleasure trip through some thirty states, I have been interested by the differences in the plans that are operating. Oregon and Washington have perhaps the best-developed group medical care plans on the mainland. This is due, I believe, to two factors: (1) that the plans are being operated by the medical societies, and (2) that they have been in operation for many years and, therefore, have a long experience-rating on their groups. Detroit, Michigan, has the largest membership in the United States: over 350,000 industrial workers are insured by the Michigan Medical Plan, with some 4,000 physicians participating. Buffalo, New York, is operating a medical service sponsored by five local county medical societies. This plan is quite new and has a membership of about 5,000.

New York City has two medical plans sponsored by a large number of the doctors in that city. The plans have only recently begun operation, and it is difficult to say how they will progress. The big problem in New York City is that with so many doctors it is hard to get them organized. Washington, D. C., as many of you will remember, has a plan called Group Health, Inc. This service was the cause of a suit between Group Health, Inc., and the Washington Medical Society. This service employs about fourteen doctors and operates its own drug dispensary, injection room, first aid department, etc. Some 12,000 government employees are insured. Such a plan can be operated at slightly less cost than the other plans I visited. However, there are many disadvantages to such a set-up.

The California Physicians' Service seems to be doing a good piece of work in California. Some 6,000 physicians are participating. This plan has

been in operation for three years and has more than 50,000 members.

In talking with the doctors and the lay managers of these plans I have come to the following conclusions: that each city or state must develop a plan that suits the particular needs of the employees; that the protection and monthly dues vary as to the type of industry; that the majority of these plans do not provide as complete a protection as the Hawaii Medical Service, though the monthly dues are much higher than ours; that the doctors are paid on a unit basis and in many plans are only paid forty to sixty cents on the dollar for service rendered; that the doctors everywhere have much more "red tape" than we do here in filling out various claim forms; that most plans have had difficulty with teachers and nurses, and many will not insure them; that mainland fee schedules are from twenty to forty percent lower than ours; that there is a definite awakening of the medical profession to the need for this type of care; that our basing the member's monthly dues on his income is a definite advance in medical insurance; that our service is running smoothly as compared with the mainland plans; that medical plans should be medically controlled with the assistance of industrial leaders; that most doctors believe that if these voluntary medical and hospital plans do not fulfill the public needs, something may be done by the government; that the medical societies should co-operate to the fullest extent, because medical insurance is basically sound and will survive, whether it be our co-operative medical plans or government medicine. The decision, I believe, rests with the medical profession.

W. M. BOWMAN, Manager, H.M.S.A.

The President  
Hawaii Territorial Medical Association  
Honolulu, Hawaii

Dear Doctor:

The members of the Hartford County Medical Association have just had the pleasure of an address by Dr. John J. Moorhead, Colonel, M.R.C., U.S. Army, on "Surgical Experiences at Pearl Harbor".

The speaker described the magnificent and patriotic service rendered by the members of your Society at the time of this unfortunate attack.

The excellent professional care which the injured and disabled received contributed materially to the marvelous results obtained.

May we offer our sincere congratulations.

Yours very truly, FRANK T. OBERG, Secretary



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DISEASES OF THE CHEST, 4:19.  
May, 1938.

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VOLUME 1

MAY, 1942

NUMBER 5

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OF MEDICINE

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K. P. JONES, M. D. AND I. L. TILDEN, M. D.

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## CLINICAL ASPECTS OF AN EPIDEMIC OF TYPHOID FEVER

ROBERT J. HOAGLAND, MAJOR, M. C., U. S. A.

AND

JAMES F. FLEMING, FIRST LIEUTENANT., M. C., U. S. A.

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## TRICHINOSIS

GORDON H. LIGHTNER, M. D.

AND

WILLIAM B. PATTERSON, M. D.

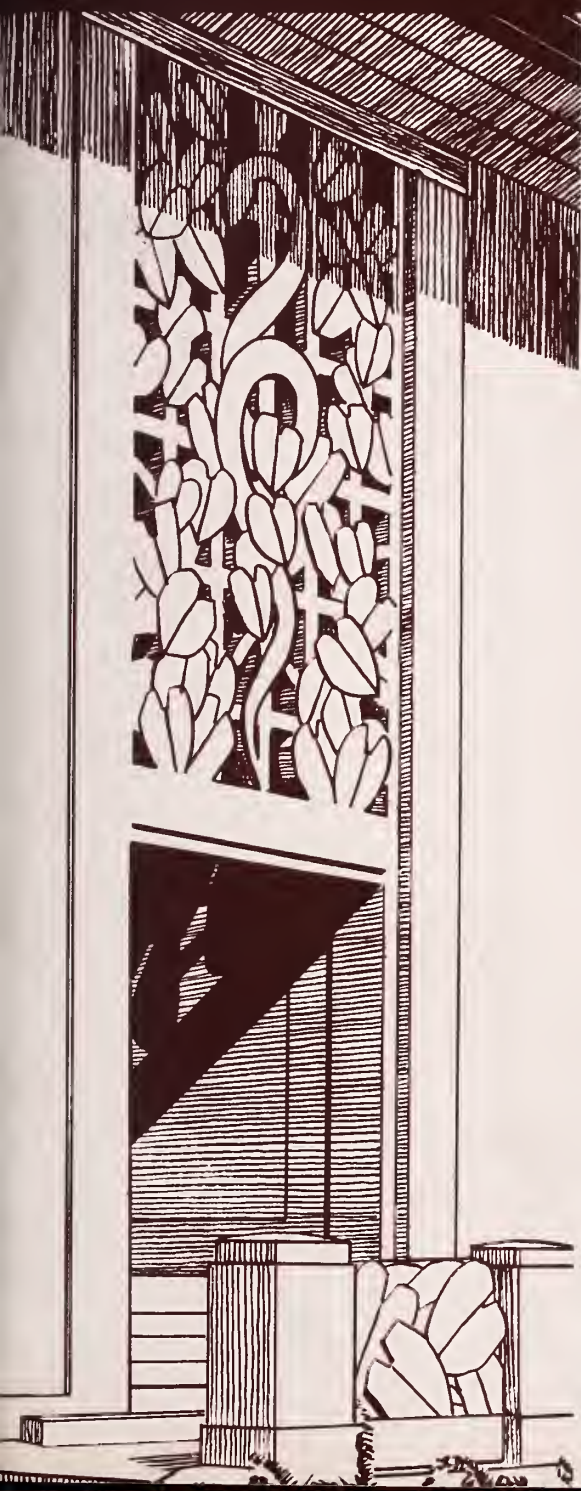
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## AN ORTHOPEDIST GROWS UP

STEELE F. STEWART, M. D.

52ND ANNUAL MEETING

SEMINAR --- DISPOSITION OF WAR CASUALTIES  
POSTPONED





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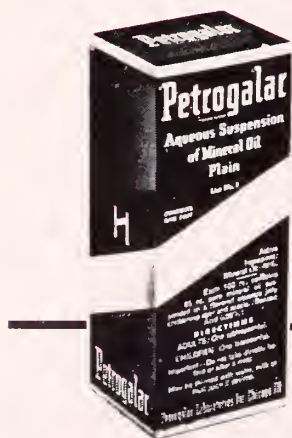
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# *We Must Hold Hawaii!*



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WASHINGTON TIMES HERALD  
FEBRUARY 21, 1942

or guns somewhere in northern Malaya or Borneo, too—six weeks ago.

We hope the reassuring arguments are true as to Hawaii. We think they should be true to this extent: That the Japs will hardly be able to attack Hawaii before they have cleaned up in Java. But we aren't even sure of that. Neither is anybody else.

There is only one way, that we can see, in which official Washington can prove to the American people that it is not being complacent about Hawaii. The way is to equip Hawaii so that the Japs either will not attack it, or will have their teeth kicked down their throats if they do attack it.

Alibis after the event are a specialty of politicians. Some lovely alibis for the fall of Singapore were immediately forthcoming in London. But Singapore is gone; and now the Allied war effort in the Southwest Pacific is staggering.

If Hawaii goes, our power to help the Allies in the Southwest Pacific will go with it. So will the key to our defense of our side of the Pacific, and of the Panama Canal from the West.

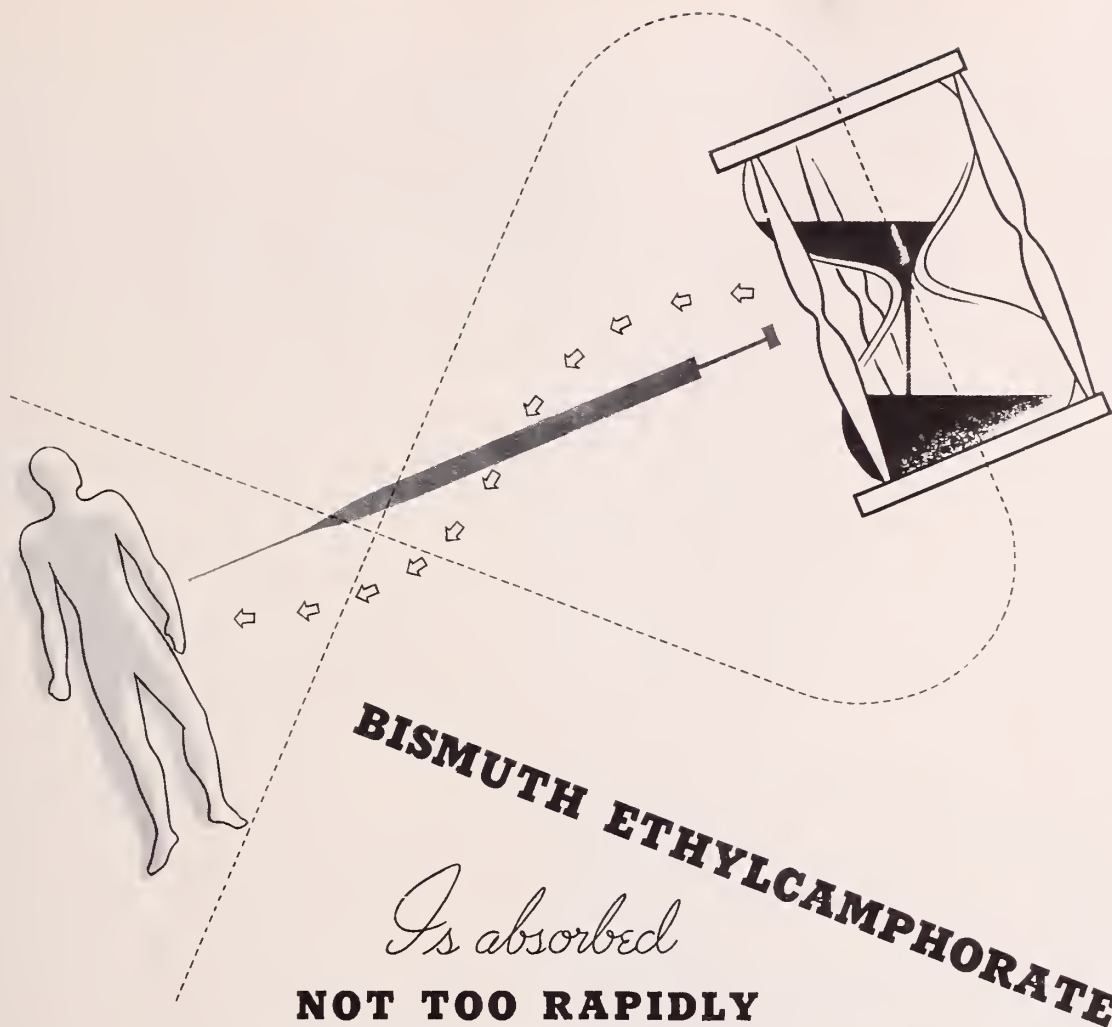
★ ★ ★

Written by John O'Donnell, correspondent for the New York Daily News, and the Times Herald, now in Hawaii.

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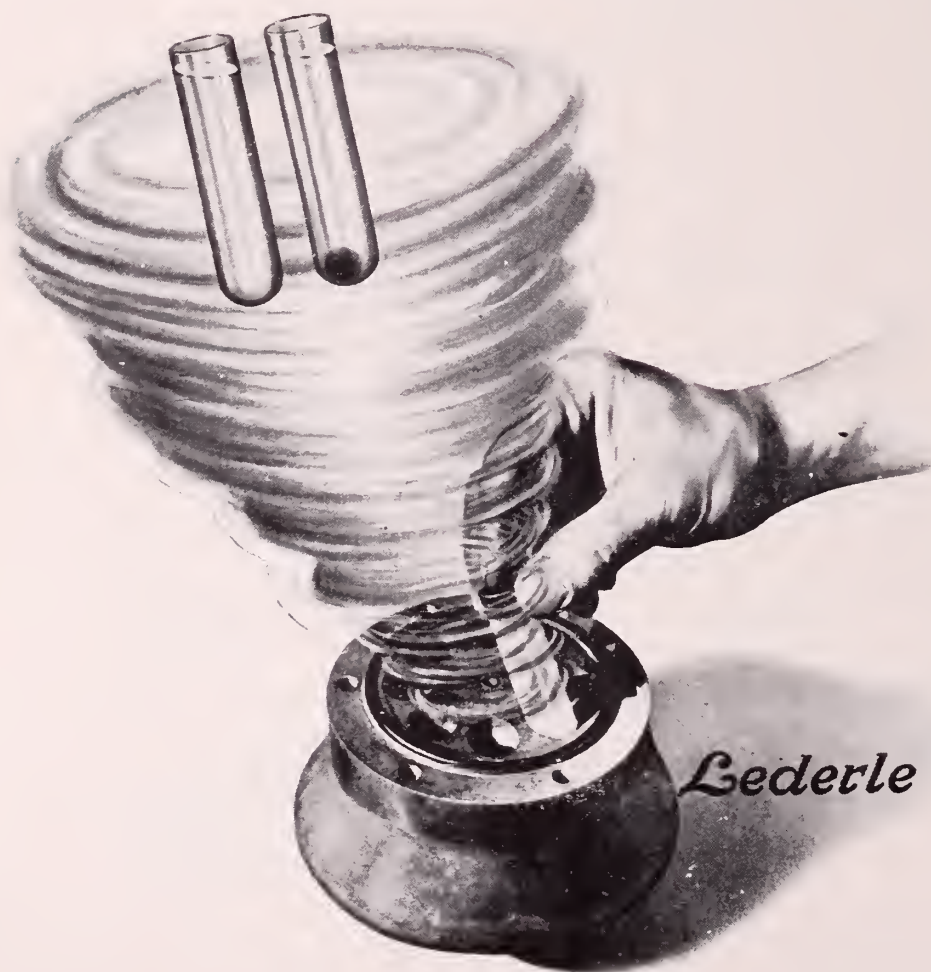


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Honolulu, Hawaii, U.S.A.

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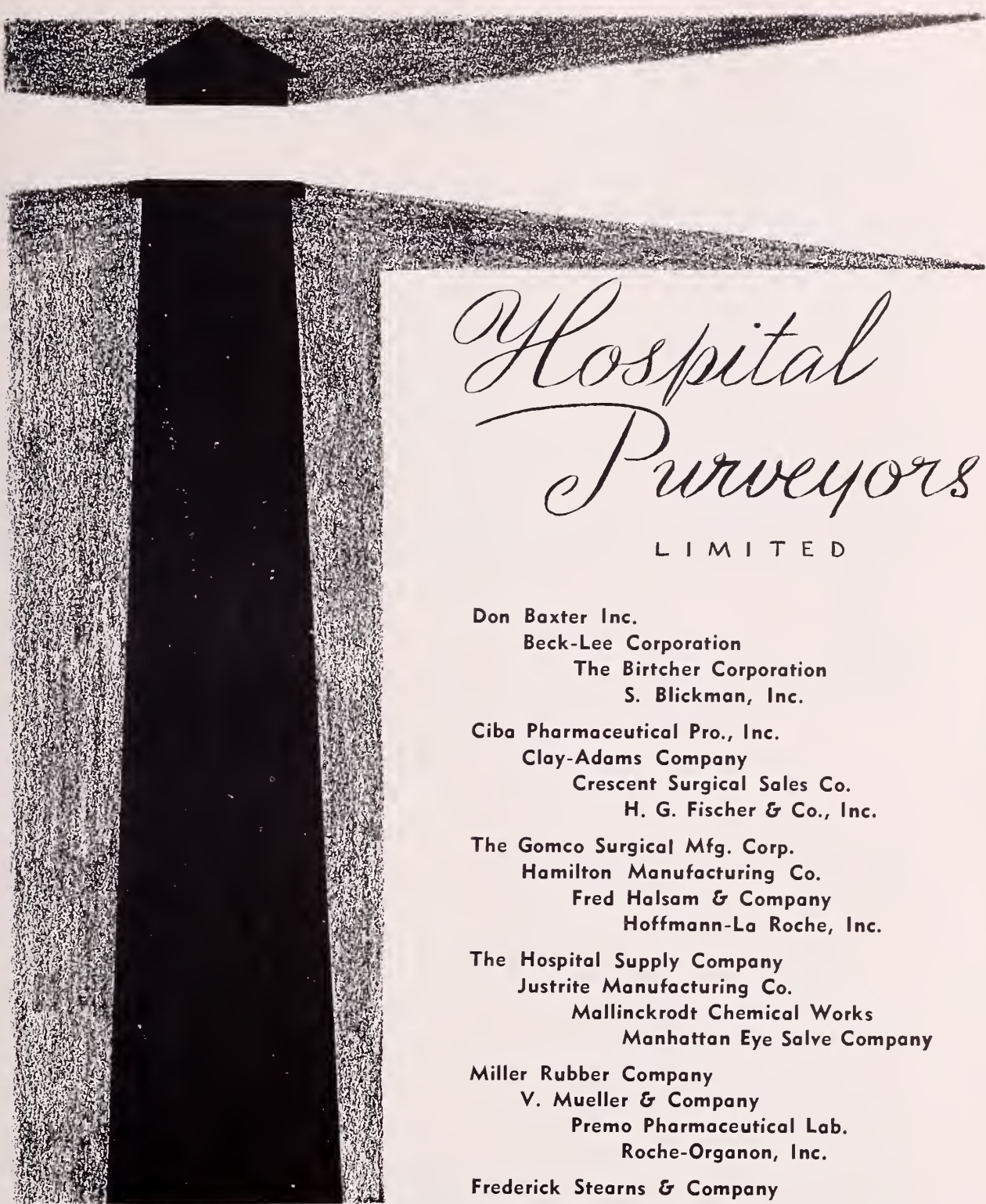
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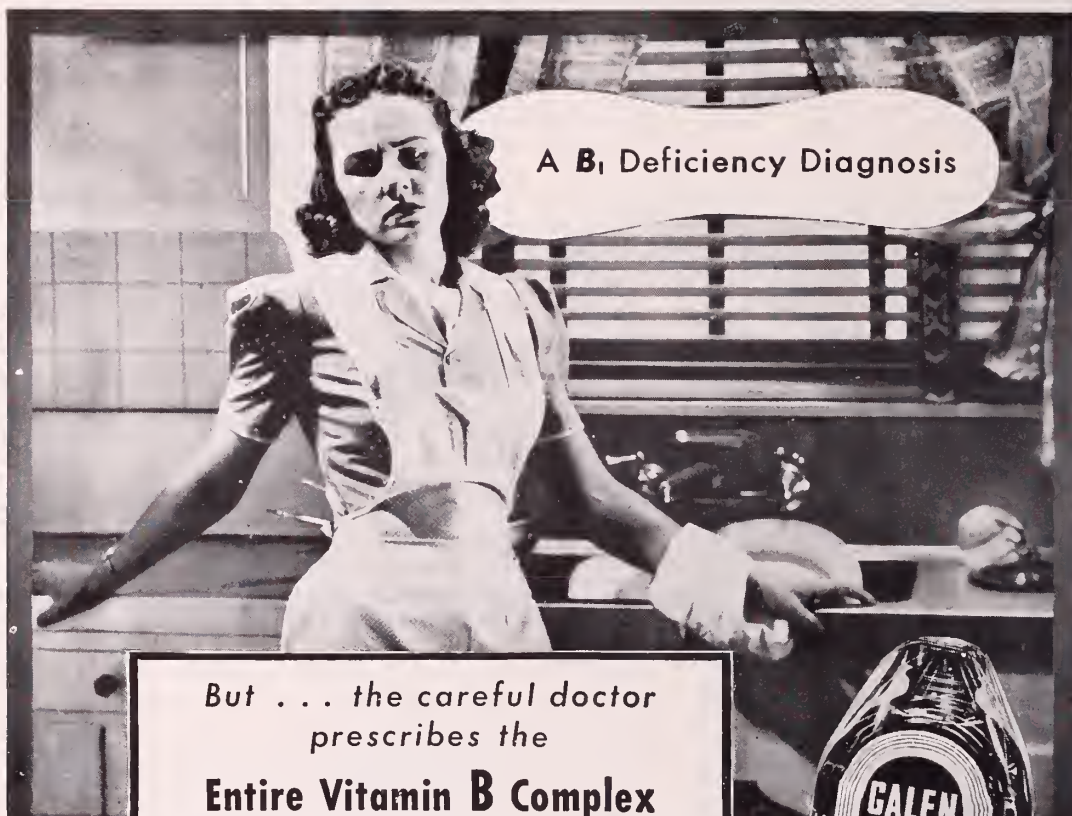
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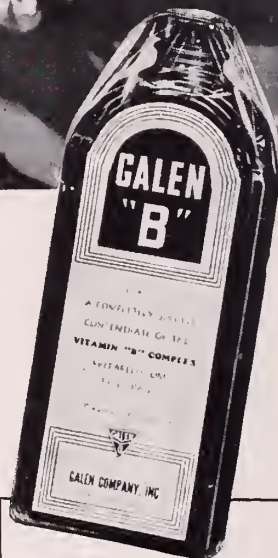


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# Tuberculous Myocardial Aneurysm With Rupture and Sudden Death from Tamponade

REVIEW OF THE LITERATURE AND REPORT OF A CASE

K. P. JONES, M.D.

Kula, Maui

AND

I. L. TILDEN, M.D.

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Spontaneous rupture of the heart due to tuberculosis is an extremely rare occurrence. Krumbhaar and Crowell<sup>1</sup>, in 1925, analyzed 654 cases of spontaneous rupture of the myocardium and discovered only one case due to tuberculosis, and this was based upon rather antiquated and questionable data. Isolated tuberculous myocarditis is in itself quite rare, as attested by Horn and Saphir's review of the literature in 1935<sup>2</sup> and Saphir's later review of myocarditis which appeared recently in the Archives of Pathology<sup>3</sup>. Direct extension of a tuberculous process to the myocardium from a preexisting pericarditis, however, is met with more frequently.

There are only two references in the Index Medicus from 1922 to date which can be interpreted as referring to spontaneous rupture of the myocardium due to tuberculosis; unfortunately, both of these papers appeared in the foreign literature and are not available to us here<sup>4</sup>. There is no such reference on record in the Surgeon General's Library. There is *no* case on record, so far as we can find out, of a tuberculous *aneurysm* of the left ventricle which ruptured spontaneously, producing sudden death from tamponade. It accordingly seems worthwhile to present the following case, possibly the first of its kind to be recorded.

In this connection the words of E. Lloyd Wilbur<sup>5</sup> appear almost prophetic. This author described a case of congestive heart failure of obscure etiology which was found at autopsy to be due to unsuspected tuberculosis of the myocardium, and reported 3 additional cases of tuberculous myocarditis. In one of the latter (Case 3) there was tuberculous extension from the pericardium through the atrium to a point of ulceration on the endocardium, although the process was evidently so walled off that hemopericardium had not occurred. Referring to this case, Wilbur states: "This . . . [factor to consider] is the possibility of rupture through a caseous area that

extends from an intracardiac chamber to the pericardial cavity. This could result in sudden death due to tamponade."

## CASE REPORT

W. H., an 11 year old girl, entered Kula Sanatorium on May 17, 1939, with a diagnosis of tuberculous cervical adenitis and primary hilar adenitis. No parenchymal lung lesion was seen in the admission roentgenogram.

Both parents had pulmonary tuberculosis. In other respects the family and personal histories were negative. The patient's temperature on admission varied from 100 to 103 F and dropped during her hospital stay to a maximum fluctuation of 98 to 99.8 F. Her pulse ranged from 90 to 110. The heart sounds were normal to auscultation and both heart and lungs appeared normal by X-ray (Fig. 1.) although fluoroscopic examination by Dr. Sanders on March 5, 1941, revealed "the upper pole of the left hilum somewhat distorted and pulled upward—possibly old hilar lesion."

Laboratory study showed a white blood count of 11,500, of which 76% were neutrophils, about one half of these being band forms, and 24% lymphocytes. The



Fig. 1. X ray showing normal appearing heart and lungs.



erythrocyte count was 4,000,000. The sedimentation rate by a modified Westergren method was 13 mm. per hour. (Normal: 3 to 7 mm. per hour for women.) Urine examinations were negative and numerous specimens of sputum and stomach washings were negative for tubercle bacilli by both smear and cultural methods.

On June 29, 1941, the patient was given a glass of milk at bedtime, and just as she had finished drinking it, while still sitting up in bed, she gasped, fell forward and expired a few minutes later.

#### PATHOLOGIC REPORT (Significant findings)

The lungs presented no gross abnormality. The pericardial sac was greatly distended by a large amount of recent blood clot and sero-sanguinous fluid. The heart weighed 227 grams. The pericardial surface was generally smooth except in several areas near the base where tags of exudate were present. At the base of the left ventricle was a saccular aneurysm which measured 3 cm. in diameter at its origin and slightly over 3 cm. in length, with a wall which varied from 3 to 7 mm. in thickness (Fig. 2.) It was lined by endocardium and communicated freely with the left ventricle just below the mitral valve. Near its apex was a circular defect 5 mm. in diameter. The wall of the aneurysmal sac consisted of rather friable brownish-gray tissue mottled with white. The adjacent left ventricle measured 2 cm. in thickness and presented several firm, white, irregular, more or less confluent nodules 0.5 to 1.5 cm. in diameter just at the origin of the aneurysmal sac. This region was rather sharply marked off from the remainder of the myocardium, which was normal in appearance. The right ventricle revealed no gross abnormality; all of the valves were thin and pliable and entirely normal in appearance. The first portion of the aorta appeared slightly thickened and the intima was discolored. The orifices of the coronary arteries were open, and both arteries presented a smooth, shining intima.



Fig. 2. Section of heart. Arrow indicates aneurysm.

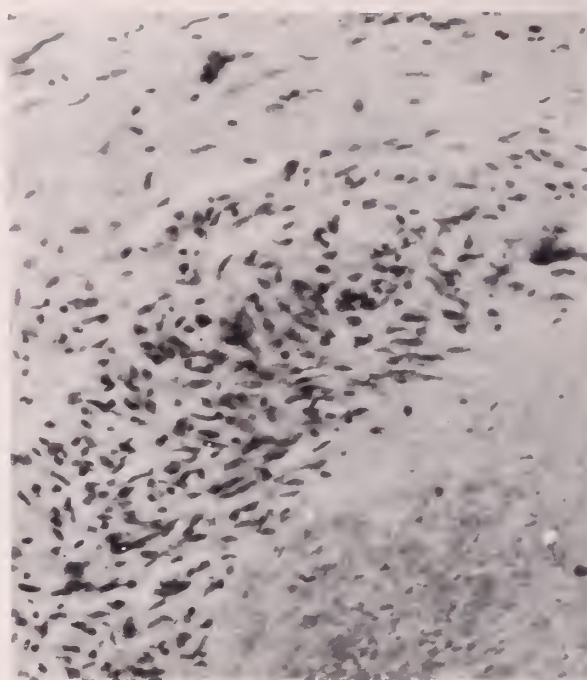


Fig. 3. Photomicrograph showing central caseation (lower right), a zone of epithelioid cells and lymphocytes just above, and muscle fibers above this.

Microscopic examination of blocks of tissue from the aneurysmal sac and the base of the left ventricle disclosed the histologic changes typically associated with tuberculosis: small and large discrete and confluent tubercles made up of the usual caseated centers with epithelioid cells and occasional poorly formed Langhans giant cells at periphery (Fig. 3.) The intervening muscle in this location was badly damaged; the individual fibers were distorted and granular, partially broken up and infiltrated by lymphocytes. In many fields there was patchy fibrous replacement of destroyed muscle and some evidence of muscle cell regeneration in the form of large irregular hyperchromatic nuclei. Sections made of blocks of tissue taken from the apex revealed a comparatively normal picture, although a few foci of round cells were observed, particularly about blood vessels.

#### Anatomic Diagnosis:

1. Tuberculous aneurysm, base of left ventricle, ruptured, with hemopericardium.
2. Localized tuberculous pericarditis.

#### DISCUSSION

Saphir<sup>3</sup> divides tuberculous involvement of the myocardium into the miliary (most common in children), the nodular, and the diffuse infiltrative types. The latter type can be accepted only if the histology is outspokenly that of tuberculosis or if tubercle bacilli can be demonstrated by stain, culture or animal inoculation. This case falls into the nodular group, since the disease was rather sharply limited to the base of the left ventricle; the aneurysm undoubtedly arose in a tuberculoma, probably gradually over a period of months or

even years; certainly the histologic changes bespeak a process of long duration. The presence of regional pericarditis indicates that the process probably reached the heart by direct extension from a focus in the hilar lymphnodes. The absence of miliary involvement of the heart and other organs argues against a hematogenous origin.

### SUMMARY

A case of tuberculous aneurysm of the heart with rupture and sudden death from tamponade is reported. It is possibly the first case of its kind to be recorded.

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# Tuberculosis in the War and Post-War Period

H. M. IZUMI, M.D.

Kula, Maui

As everyone knows, the mortality from tuberculosis has consistently declined throughout the world in the past fifty years. This Territory likewise has shown a downward trend. In 1920, the mortality rate in the Territory was 200 per 100,000; in 1930, 106; and in 1940 the tuberculosis mortality rate reached the new low of 63 per 100,000. Our anti-tuberculosis programs, incorporating education of patients and the general public, improved methods of diagnosis and treatment, and the betterment of socio-economic conditions, have all been contributing factors toward this rapid decline in death rate.

In the flare of the present war and in the period to follow, what might we expect as to the trend of this disease? It has often been pointed out that the greatest destroyer of men is not the war machines of the enemy, but the domestic sabotage resulting from unnecessary health hazards. The present war is likely to be accompanied by a definite reduction in our standard of living, by food shortages, by overcrowding, by increased health hazards entailed by "blackout" precautions, to say nothing of the added mental and physical strain, and disruption of regulated hours of rest.

In view of these we may expect an adverse trend in the incidence and mortality of tuberculosis in the near future. Our hope in mitigating

this trend falls on the already-burdened shoulders of our profession. In this emergency, more than ever, clinical acumen must be relied upon, but the detection of this disease in its favorable stages demands, in almost all cases, x-ray or equivalent studies.

Early diagnosis, early treatment and control have long been accepted as vital in maintaining the downward trend of incidence and mortality of tuberculosis. The responsibility of early diagnosis will, as in the past, oftentimes be that of the general practitioner who first sees the patient. Treatment and rehabilitation of cases, and the follow-up of family and intimate contacts can, if desired, be handled through those agencies and institutions staffed by personnel trained to this work. Local industry by continuing its pre-war cooperation in seeking tuberculosis in its employees, may make an invaluable contribution to future community health. It is only in this spirit of total cooperation that some hopeful accomplishments may be achieved in combating the otherwise adverse outlook concerning tuberculosis.

The following table illustrates the results of the Maui Case-Finding Program, carried out by Drs. C. J. Wilen, R. G. Benson, R. T. Eklund, H. M. Izumi and J. F. Sanders. What will a similar table show a year from now?

MAUI CASE-FINDING PROGRAM  
1935 TO 1942

	1935-1940	1940	1941	Total
Total number tested .....	31,481	3,129	1,783	36,393
Positive reactions .....	10,575	877	630	12,082
Per cent positive reactions .....	33.59	28.02	35.33	33.20
Demonstrable X-ray lesions .....	556	56	20	632
Childhood type—primary .....	382	12	11	405
Adult type .....	174	44	9	227
Pulmonary Tb.—minimal .....	101	34	5	140
Pulmonary Tb.—mod. adv. ....	35	10	3	48
Pulmonary Tb.—far adv. ....	9	0	0	9
Pulmonary Tb.—healed .....	14	0	0	14
Hilar Tb.—healed .....	0	0	1	1
Unclassified .....	15	0	0	15



# Dermoid Cyst of the Ovary Complicating Pregnancy

REPORT OF A CASE

H. H. SEILER, M.D.

Paia, Maui

Dermoid cysts of the ovary are not uncommon, constituting about 10 per cent of all ovarian tumors according to Curtis<sup>1</sup>. They may occur at any age but are most common during the years of sexual activity. In a series of 15,000 women receiving treatment at Luthardt's clinic in Leipzig<sup>2</sup>, 826 (6 per cent) were operated on for ovarian tumors. Of these, 8.7 per cent presented dermoid cysts. In 86 per cent of these cases the tumor was unilateral and in 14 per cent bilateral. Twisting of the pedicle occurred in 13.6 per cent, the highest degree of torsion being 720 degrees. Simultaneous pregnancy was present in 7 per cent of cases.

Because of their slow growth and frequently long pedicle, dermoids are more prone to complications than are other ovarian tumors. These may be adhesions, incarceration, torsion, infection, rupture, and malignancy. However, until the advent of some complicating factor, dermoids may, especially if small, be singularly free from symptoms. It is generally conceded that dermoids respond to no other form of treatment than surgical extirpation. Bowles, in Honolulu, in an interesting review<sup>3</sup>, has recently added to the literature 5 cases of bilateral ovarian dermoid cysts complicating pregnancy, bringing the total number of such cases reported to 52. Andrews and his colleagues<sup>4</sup> have reviewed the literature and written an excellent analysis of the reported cases.

Herewith is presented a case of dermoid cyst of the right ovary with strangulation and necrosis following 540 degrees' torsion on its pedicle, occurring during the seventh month of pregnancy.

## CASE REPORT

*History:* M.N., a 37 year old Japanese housewife, was admitted to Paia Hospital on the morning of January 17, 1942, complaining of acute abdominal pain in the right lower quadrant since the previous night. This pain was quite localized, and nausea and vomiting had occurred on 3 occasions during the night. Patient was in her estimated seventh month of pregnancy, para 6, gravida 7, estimated date of confinement April 8th. There had been no vaginal bleeding or discharge with the present illness, no uterine contractions, no diarrhea or constipation, no complaints referable to the respiratory or urinary tracts. The menstrual his-

tory had not been remarkable. Past history was non-contributory, the patient having been free from illness except for the usual childhood diseases and occasional eye disease. She last saw a doctor six years ago with the birth of her fifth child. Her sixth baby was born at home three years ago, the husband acting as midwife, and the delivery was apparently uneventful. This woman was of the stoic, "old country" type who speak only Japanese, live in one of the more isolated plantation camps, and seek medical care only when driven to do so by some major incentive such as severe pain. Thus she had not been attending the monthly prenatal clinic provided for plantation employees.

*Examination:* Patient was a well-developed, moderately obese Japanese female, apparent age 40, abdomen rotund and prominent to correspond with the final trimester of pregnancy. Her facial expression on admission suggested pain. Temperature 100.2 F, pulse 88, respirations 26. Eyes, ears, nose and throat not remarkable. Poor oral hygiene. Chest clear throughout. Heart normal to auscultation and percussion. Colostrium expressed from both breasts. Abdomen large, round, and firm. Fundus of the gravid uterus palpated 5 cm. below the ensiform process. Leopold's maneuvers revealed vertex presentation, position left occiput anterior. Fetal heart rate 168, left lower quadrant. Palpation of right lower quadrant elicited marked tenderness and muscle guard seemingly centralized at a point about one-third the distance between the iliac spine and umbilicus. Rebound tenderness present. No mass palpated. Kidneys and other organs not palpable. Pelvic examination revealed a soft, patulous cervix against the large mass of the uterus; it was otherwise negative, except for the fact that on bimanual examination the abdominal hand elicited the same tenderness in the right lower quadrant. No adnexal detail could be made out, due to the large size of the uterus. Rectal examination was corroboratory.

Urinalysis was normal, showing only 1 plus leukocytes and 1 plus epithelial cells in a catheterized specimen. White blood count was 13,500 with 87 per cent polymorphonuclears.

*Clinical Course:* Because of the localized character of the pain, the fever, leukocytosis, rebound tenderness, and absence of other findings, a diagnosis of acute appendicitis was made and immediate operation performed. In view of the patient's concomitant pregnancy, McBurney incision was thought advisable so as not to weaken the abdominal wall more than necessary. Upon incising the peritoneum, a moderate amount of straw-colored fluid presented itself. When this was withdrawn, the anterolateral aspect of the uterus was seen, and, dipping down into the superior half inch of the wound there was seen the tip of a smooth, black mass. The incision was elongated upwards and somewhat laterally, exposing a dark

ovarian cyst twisted one and a half times on its pedicle. The mass was the size of a small fist, boggy, and somewhat flattened and ovoid, rather than round, due to being pressed between the uterus and the abdominal wall. The Fallopian tube was incorporated as part of the tumor, the ovary itself was obliterated, and there was no evidence of a corpus luteum. The broad ligament was a mass of varicosities. The pedicle was doubly clamped and ligated, and the cyst excised. The peritoneum and abdominal wall were closed by layers in the routine manner.

The post-operative course was quite uneventful and the patient discharged on the twelfth day. At no time during her convalescence did she threaten to go into premature labor. One cc. of lipolutin (hypo) was given daily for the first six postoperative days as an aid in warding off this undesirable event.

*Pathologic Report:* Gross examination of the specimen revealed a flat, ovoid tumor measuring 8x6x4 cm. It was darkly discolored and a Fallopian tube was present at one pole, partially incorporated into the tumor. Upon sectioning, the tumor was seen to consist of 2 main compartments, the larger of which contained the dermoid process. A section of bone was present from which 3 or 4 teeth were arising. Both compartments contained black, matted hair and thick sebaceous material. Several microscopic sections were made, but because of the advanced necrosis everywhere no conclusions as to the nature of the tumor could be drawn microscopically. The gross examination was, of course, diagnostic. (Pathologic study done by Dr. I. L. Tilden.)

#### COMMENT

Possibly this cyst should have been palpated abdominally when the patient was first examined. However, due to the position of the cyst and its boggy consistency, and with the already large uterine mass and thick abdominal wall, I believe the mass was probably actually not palpable, rather than merely overlooked. At least, no suggestion of a mass occurred to any of the three physicians who examined the patient.

It is felt that the clinical picture, strongly suggestive of acute appendicitis, warranted the McBurney approach in a seven months' pregnant woman. No attempt is made to explain why the phenomenon of rebound tenderness was positive in this case, unless it be due to the fact that the

close proximity of the organs involved, namely the uterus and the right adnexal mass, was such as to transmit a painful impulse when pressure was exerted in the left lower quadrant.

The possibility of bilateral disease must be kept in mind. It was impossible to explore the opposite ovary at time of operation, due to the size of the uterus and type of incision. However, more satisfactory pelvic examination will be done some weeks following delivery, and the patient is being kept constantly under surveillance with this in mind. X-ray is also planned to reveal any teeth or bony structures which might be present in a left-sided dermoid. She is now at term and expected to deliver shortly. In addition, she has requested sterilization at some future date. If this procedure is carried out, a more satisfactory examination of the left adnexa can be made.<sup>5</sup>

#### SUMMARY

A case of right ovarian dermoid cyst strangulating in the seventh month of pregnancy and simulating acute appendicitis has been presented. Figures for unilateral dermoids complicating pregnancy are not given, but Bowles has stated in a recent article that the total of reported bilateral cases is now 52. It is the intention of the author to follow this case for a number of months in an effort eventually to determine whether we are here dealing with a unilateral or bilateral condition, and, if the latter be found, to report it at some future date.

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5. The patient was delivered of a normal boy on April 25th, and a roentgenogram revealed no evidence of contralateral disease.

# The Need for Autopsies in Stillbirths and Neonatal Deaths

WILLIAM B. PATTERSON, M.D.

Puunene, Maui

When an infant is born dead or dies shortly after birth, an autopsy should always be performed to determine the cause of death. Such deaths should not be signed out as "congenital hearts" or the like unless there is pathological evidence of such. If a woman goes through pregnancy and is deprived of a living child at the end, the least the doctor can do is to accurately determine the cause of death by autopsy. It is also important for the sake of vital statistics that the cause of death be correct.

For two years I was on the resident staffs of teaching maternity hospitals where autopsies were performed on all stillbirths and neonatal deaths. During this time over 3,000 babies were born in these hospitals, with a death rate varying from 0 to 5% from month to month. I can remember only one case in which we could not determine the cause of death at autopsy. This was a term baby that died six hours after cesarean section.

In June, 1941, there were 3 neonatal deaths at the Puunene Hospital. With a total of 25 births this gives a high percentage of deaths, but autopsies were performed on all 3 cases and conditions incompatible with life were found. A brief summary of these cases is presented.

## CASE REPORTS

Case 1. Primipara admitted on first visit with severe toxemia at seven and one-half months. X-ray showed twins. After two days' rest, labor was induced by Voorhees bag. A short labor followed, and the first baby was born spontaneously. This baby cried and its condition was good from the start. The second baby was born spontaneously soon after the first, but it failed to cry and remained blue for thirty minutes. With the aid of oxygen its condition improved temporarily, but even with oxygen it continued to have a red cyanosis. There was no heart murmur. It died after twenty hours. Autopsy showed an interventricular septal defect extending the length of the septum. Clinically this was evidenced by the red "cyanosis."

Case 2. Spontaneous delivery at term, and appeared normal at birth. After twelve hours baby choked while taking water and became cyanotic. No breath sound could be heard in the left chest. Death occurred after eighteen hours in spite of oxygen therapy. Autopsy revealed a diaphragmatic hernia with an opening 2 cm. in diameter in the center of the left side of the diaphragm. The stomach, small intestine, and part of the large intestine were in the left

pleural cavity, and the left lung had never expanded. This case could have been diagnosed by X-ray either before or after death, except that before death it could not live without oxygen once the symptoms developed.

Case 3. Delivered in home at term by a midwife. Baby remained blue for two hours and doctor was called. No heart murmur was heard. Oxygen therapy was given and color was good. Death occurred after twelve hours. Autopsy showed an interauricular septal defect: the flap that normally closes the foramen ovale was imperfect, and did not close the foramen at all. The foramen was oval in shape and much larger than normal. It measured 1 by 0.5 cm.

## COMMENT

In all three of the above cases I was able to tell the parents the exact cause of death, and they were all satisfied. One can often diagnose the cause of death by clinical signs, but not always. A baby that becomes cyanotic and dies within the first few hours or days of life may have intracranial hemorrhage or damage without a bulging fontanelle. He may have congenital heart disease without a murmur or enlargement. I have seen cases die of cerebral edema without hemorrhage, that were delivered spontaneously after a short labor. The fontanelles in such cases are very tense, and when the head is opened the brain substance protrudes. Microscopic sections will also show the edema.

Where a difficult forceps delivery has resulted in death of the infant, an autopsy may reveal abnormalities incompatible with life. Difficult breech deliveries may develop adrenal hemorrhages that cause death. Syphilis often causes stillbirths and neonatal deaths. A blood Wasserman on every pregnant woman before the fourth month of pregnancy will almost prevent this. I have seen a woman who had a negative Wasserman at the third month develop a secondary syphilitic eruption at the eighth month. She went into labor and delivered a premature infant that lived a few hours and died. Autopsy showed the liver loaded with spirochetes.

A woman who has had one congenitally deformed child may ask what are the chances of her having another deformed child. The chances are one in eighty-six, but the incidence of deformed infants increases rapidly after the fifth child.



# Trichinosis

## REPORT OF FOUR CASES

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AND

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We report herewith 4 cases of trichinosis seen in Puunene in July and August 1941. The subject of trichinosis has been well treated in the August 9, 1941 issue of the *Journal of the American Medical Association* by Wyrens and others and also in the *American Journal of Medical Sciences* for August, 1941, by Most and Helpert. The incidence of asymptomatic trichinosis in New York City, as found in 100 bodies dying from other causes, was said to be 22 per cent. The incidence of trichinosis infestation in Hawaii may well be higher than this, due to the fact that much pork from wild pigs is eaten raw or improperly cooked. This is particularly true of the Filipino bachelor who cooks his own food. The 4 cases reviewed here were all in Filipino bachelors.

### CASE REPORTS

Case 1. Filipino, bachelor, 36, complained of headache and aches all over the body. Temperature 103 F. on admission and physical examination negative. Blood count on admission showed 7,800 leukocytes with 15% eosinophils. Urine on admission was negative. Ten days later the white count was 10,200 with 38% eosinophils, and the urine showed 1 plus albumin with granular casts. Muscle biopsy showed encysted *Trichinella* larvae. The temperature slowly returned to normal and the patient was well after three weeks.

Case 2. Filipino, bachelor, complained of headache, fever and pain in his eyes. Temperature was 101 F on admission but fell to normal on the second day. Patient felt so well he was allowed to go home on the third day. At this time his white count was 6,400 with 23% eosinophils. Urine was normal. Three days later patient returned with a fever of 102 F but physical examination was still negative. The white count at this time was 12,040, with 20% eosinophils. The urine was negative. Four days later the white count was 11,960 with 35% eosinophils. The patient's temperature gradually returned to normal and he was discharged after two weeks. Muscle biopsy showed encysted *Trichinella* larvae.

Case 3. Filipino, bachelor, 49, complained of a "cold" with general malaise. On admission temperature was 100 F, white count 12,640 with 79% polys and 21% lymphocytes. Urine was normal. Four days later the white count was 18,640 with 32% eosinophils. Muscle biopsy showed encysted *Trichinella* larvae. Patient gradually improved and was discharged after ten days.

Case 4. Filipino, bachelor, 34, complained of headache, pain in legs, and diplopia. On admission temperature 103 F, white count 7,200 with 17% eosinophils. Urine showed 1 plus albumin and hyaline casts. Three days later the white count was 6,400 with 22% eosinophils. Muscle biopsy was positive for trichinosis. Patient recovered rapidly and diplopia disappeared. He was discharged after ten days.

### COMMENT

Cases 1 and 2 were room-mates who ate the same food. All 4 cases had recently eaten pork, though all the pork was cooked. The pork had been purchased from a reputable meat market, and had passed routine inspection. At the same time that the above cases were in the hospital there were several other patients admitted with similar symptoms of weakness, muscle pains and general malaise, although they did not have a high eosinophile count. They were not very sick and were soon discharged as "cold's." Other patients were seen in the out-patient department with the same complaints of weakness in the legs and muscle pains but were not sick enough to stop work. They often gave the complaint of "no more strong" and wanted some medicine for treatment. No doubt there were many cases of trichinosis so mild that the patients never came to see the doctor.

### DIAGNOSIS

The symptom of muscle pain is present in almost every clinical case of trichinosis, but it is rarely the chief complaint. The patient usually complains chiefly of general malaise, headache and weakness. These symptoms are accompanied by fever and at the original examination the physician is likely to suspect some other disease such as influenza, typhoid fever, rheumatic fever, etc. The face is often swollen and puffy and this, combined with albuminuria and casts, may cause one to suspect nephritis or angioneurotic edema.

It is interesting to note in the article by Wyrens, et al, that over half their cases complained of ocular symptoms. One of the above cases had diplopia caused by temporary paralysis of the external rectus muscle.

A high eosinophile count is usually the first finding which makes one think of trichinosis. The eosinophile count may not be high early, as in Case 3, where there were no eosinophils originally. Blood counts repeated every four days will show the percentage of eosinophils rising if trichinosis is present. It may reach 60%.

#### TREATMENT

There is no specific treatment for trichinosis. Bed rest and symptomatic treatment for a few days or weeks usually is sufficient for recovery. However, permanent muscle damage results in all cases, the degree depending on the massiveness of the infestation. Other localized symptoms may remain depending upon the sites in which larvae lodge and become encysted.

It is important to make a correct diagnosis because more rest is required than with "flu" or

a "cold", which is usually the original diagnosis. If exercise is attempted too early there will be a recurrence of all symptoms. This is easy to understand when one examines a stained section of muscle tissue from even a mild case. There is an extensive round cell infiltration throughout the muscle although only occasional encysted larvae are found.

By making a diagnosis and reporting the case to the proper authorities, physicians can help to prevent additional infested pork from reaching the market. Also, people should be educated to cook all pork properly if it is known that occasional infestation exists.

#### SUMMARY

The clinical picture of trichinosis has been briefly reviewed, and 4 cases of this disease occurring on the Island of Maui have been reported.



# Ether per Rectum in the Treatment of Status Asthmaticus

REPORT OF A CASE

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Bronchial asthma appears to be as common a condition in Hawaii as on the Mainland. The asthmatic attack can generally be terminated by the use of such drugs as epinephrine, ephedrine or aminophyllin. However, occasionally we see severe and prolonged attacks—status asthmaticus—with marked dyspnea, cyanosis, and even right heart failure, which are resistant to ordinary therapy. The following case is an example.

## CASE REPORT

An 18 year old Porto Rican boy was admitted to the hospital with a severe asthmatic attack of about twenty-four hours' duration. He stated that he had had asthma as long as he could remember, with attacks varying in severity. His past history was otherwise not contributory.

Physical examination revealed a well-developed adolescent Porto Rican with marked expiratory dyspnea. On auscultation of the chest rales of the usual "accordion" type were heard. The heart sounds were normal except for some accentuation of the pulmonic second sound.

The boy was started on 5 minim (0.3 cc.) doses of epinephrine hydrochloride 1:1000, p.r.n. For about the first 6 hours of the regime he got slight relief; then he seemed to become resistant, and the drug had no effect upon the dyspnea. At this time the treatment was changed to ephedrine by injection; however this,

too, had no beneficial effect. Next intravenous aminophyllin was tried, and finally morphine plus atropine. In spite of all this the asthma continued to increase in intensity and there was an obvious development of right heart failure.

The boy's condition was rapidly becoming desperate. He refused to permit a general anesthesia. It was decided to try ether by rectum in the manner originally described by Gwathmey for obstetrical anesthesia. He was given a cleansing soapsuds enema, followed by 80 cc. of ether in 120 cc. of olive oil as a retention enema.

In about ten minutes he began to cough up thick, tenacious sputum and at the same time the dyspnea began to decrease. Thirty minutes after the administration of the ether the attack had terminated and the patient was completely comfortable; he was free from his asthma for about eighteen hours when another equally severe attack developed. The ether per rectum was repeated, with similar results. He then remained free from asthma for the remainder of his hospitalization.

## SUMMARY

A case of status asthmaticus which proved resistant to epinephrine, ephedrine, and aminophyllin was successfully treated with ether by rectum by the Gwathmey method, a procedure which seems to me both simpler and safer than inhalation anesthesia.





# Acute Pancreatitis

REPORT OF A CASE RESPONDING TO INTRAVENOUS SULFATHIAZOLE

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## CASE REPORT

A Japanese man, age 68, was admitted to Paia Hospital on September 4, complaining of lancinating pain in the pit of his stomach. The pain was so severe that the patient had to be carried in. It was associated with nausea and vomiting.

Approximately 45 minutes before admission, while riding a horse, the patient had suddenly been seized with violent mid-abdominal pain. There was some radiation of pain to the back but not to the shoulder or scapula region. A few minutes after pain started, nausea and vomiting ensued.

There was a past history of indigestion for several years. Eight years before, a cholecystostomy had been done, with removal of a solitary stone. The patient had also had numerous attacks of rheumatism in his left foot, right shoulder, both wrists, and both elbows.

Examination disclosed a thin, elderly Japanese man, assuming an almost complete lateral knee-chest position in bed; his expression was anxious, and he appeared acutely ill.

Physical examination was not remarkable except for a tachycardia of 110 per minute and boardlike rigidity of the abdominal muscles. Blood pressure was 110/70. An upper right rectus scar was present.

There was a leucocytosis of 11,400; polys 79%, lymphocytes 20%, monocytes 1%. One hour later this had changed to a count of 14,000, with polys 90%, lymphocytes 9%, and monocytes 1%. The urine contained 4 plus albumin, 1 plus red cells and leucocytes and 1 plus hyaline casts. There was no sugar. Specific gravity was 1.015.

The patient was felt to have a perforated peptic ulcer or possible acute pancreatitis. It should be noted that morphine gr.  $\frac{1}{2}$  and depropanex 3 cc., given between admission and his operation two hours later, did not abate the abdominal pain. An infusion of 1,000 cc. of 5% glucose was administered and preparations made for immediate operation. A flat plate of the abdomen revealed no subdiaphragmatic air. A suitable donor was obtained for transfusion following operation.

Under general anesthesia, an incision was outlined about the old scar, resecting it. The gallbladder was adherent to the abdominal wall and was inadvertently opened in the process of entering the peritoneum. There was a moderate amount of "beef broth" fluid escaping from the under surface of the liver and from the lesser peritoneal sac. The common duct was palpated, and no stone found. The stomach and duodenum were normal. The pancreas at its midportion was indurated and swollen to approximately 3 times

its normal size. A longitudinal opening was made in the gastro-hepatic ligament to facilitate visualization of this portion of the pancreas. On this surface were numerous extravasations of blood as well as irregular, yellowish plaques, some stellate in outline. This surface of the pancreas was not ruptured nor were any detached fragments of the organ observed.

A horizontal incision was made through the midportion of the pancreas, where the induration was greatest; at this time a biopsy specimen was removed. The opening in the gallbladder permitted exploration of the common, hepatic, and cystic ducts, from which approximately 10 cc. of gallbladder sand was removed. No other stones were encountered. The gallbladder was drained in routine fashion; a cigarette drain was carried down to the foramen of Winslow; another cigarette drain was placed over the incised portion of the pancreas; and still a third drain was carried to the cul-de-sac. A Levine tube with Wangenstein suction was inserted.

The patient was given 70 cc. intravenously of a 5% sodium sulfathiazole monohydrate solution. Sulfathiazole was given orally in a dose of 15 grains (1 gram) every 4 hours; after each dose, the stomach tube was clamped for 30 minutes. Eighteen hours postoperatively, the patient's pulse was 140, and his temperature was 101.4 F. At this time 500 cc. of citrated blood was given, following which there was notable improvement, characterized by decrease in pulse rate and the patient's expression of feeling stronger.

The patient remained desperately sick but progressively improved for the first seven days, during which time sulfathiazole was continued by mouth in decreasing doses, at least 45 grains (3 grams) daily. The Levine tube was removed on the third postoperative day, and all drains except the catheter drain in the gallbladder were removed by the fifth postoperative day. The latter extruded itself on the tenth day.

On the eighth postoperative day, the left foot, Lisfranc's joint,\* was acutely inflamed, tender, and swollen. Despite the local discomfort, the patient's general condition seemed satisfactory, though his moderate remittent fever persisted.

For the ensuing seven days, the patient's general condition remained unchanged and he took food well. The temperature now began an intermittent course, and the index finger on the right hand became the site of an acute arthritic process, which subsided by the seventeenth postoperative day. On this day, the temperature rose to 101.4 F, there was some grunting respiration, the pulse increased to 120, the respirations likewise increased, and the excursion of respiration

\*Editor's note: Lisfranc's joint is the metatarsophalangeal articulation.

was definitely limited. A roentgenogram of the chest revealed a massive atelectasis on the right side, and a considerable mediastinal shift.

Under local anesthesia the patient was bronchoscoped by Dr. T. W. Cowan, and no mucous plug was found. Hyperventilation was done, and within twelve hours' time, the patient was clinically improved to his original state. Bile drainage from the wound still persisted.

On the twenty-sixth postoperative day, he complained of sharp pain in the left anterior axillary line about the level of the diaphragm, and a definite pleural rub could be heard there on auscultation. A roentgenogram on this day revealed no parenchymal infiltration and no fluid on the painful side; the opposite side also appeared to be completely normal.

Drainage from the incision progressively decreased. The patient's sense of well-being improved, and clinically he appeared sufficiently well to be discharged on the thirty-fourth postoperative day. Upon discharge from the hospital, he was given a supply of vitamin B for oral administration, and was directed to adhere to a high-protein, low-fat diet, and return every five days for a change in dressing.

Within ten days after discharge, the wound had completely healed, and the patient was feeling much stronger. Subsequent checkups at the end of one and two months revealed a diminution in pathologic urinary elements; there was a faint trace of sugar on occasions, but no fasting glycosuria.

#### PATHOLOGIC DIAGNOSIS

A specimen of pancreas revealed myriads of polymorphonuclear cells infiltrating the interstitial tissue and surrounding the lobules. The acinar cells were relatively little involved and seemed normal in appearance. The findings were those of acute interstitial pancreatitis.

#### COMMENT

This 68 year old Japanese was desperately sick on admission and after operation, and during hospitalization presented several distressing surgical complications. At the present time, he seems completely well and shows no evidence of developing pancreatic insufficiency.

It is my feeling that intravenous sodium sulfathiazole monohydrate, establishing an immediate chemotherapeutic blood level, may have been the most decisive measure in the patient's behalf.

Our laboratory has not been equipped to do blood sulfonamide determinations, hence, a complete evaluation of drug therapy in this case is impossible.



# Clinical Aspects of an Epidemic of Typhoid Fever

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Between February 25, 1942 and March 21, 1942, 60 patients with typhoid fever were admitted to a local hospital.\* All of these cases except 2 occurred in children between the ages of 12 and 16 who attended a local junior high school. One of the exceptions was a secondary case. Her brother, who was ill at home with typhoid fever, attended this school, but she did not. The other exception was a 27 year old man who had no direct nor indirect connection with the school. Investigation by public health authorities disclosed evidence indicating that a healthy fecal carrier, employed as a food handler in the school, produced the epidemic by contaminating food eaten by the pupils.

## CLINICAL COURSE

It is well known that typhoid fever is a disease which shows considerable variability in its manifestations; therefore, discrepancy between the symptoms encountered in a given case or epidemic and those described as typically occurring in typhoid fever are to be expected. Nevertheless, the incidence of a few of the signs and symptoms present in this series of cases differed so markedly from the expected incidence that the divergence is worthy of note.

The onset of the disease in almost all of these cases was moderately abrupt. Within two or three days after the first deviation from a normal state of health, the patient was moderately severely ill with a febrile illness whose most frequent manifestations besides chilliness and fever were headache, diarrhea, dry cough, abdominal pain, and, least frequently, epistaxis. Onset with marked upper or lower respiratory symptoms, meningeal, or renal symptoms did not occur.

Headache was present in 90 per cent of our cases, but was severe in only one case. There was nothing constant about its location or about the time of day when it was usually experienced. Epidemic typhus fever is relatively common in Hawaii.

Its outstanding subjective manifestation is severe headache. It would seem that the presence or absence of severe headache is of help in deciding whether an unexplained febrile illness may be typhus or typhoid.

The least common symptom encountered by us was epistaxis. It occurred in 22 per cent of the cases, usually in the first week, but also in the second week of illness. Although its occurrence was infrequent, its presence was helpful in diagnosis, for it was absent in every case sent to the hospital for observation and proved not to be typhoid fever. Respiratory symptoms were never prominent. A mild, dry cough occurred in 36 per cent of the cases. Abdominal pain and diarrhea are known to be frequent in children. Half of the patients had mild or moderate diarrhea (2 to 5 watery yellow or orange defecations daily). It usually began between the third and fifth days of the disease, but its onset was at times deferred until the second week. It is noteworthy that diarrhea was not severe nor was it an initial symptom, and that blood and mucus were absent from the stools. These features are helpful in the differential diagnosis between typhoid fever and acute bacillary dysentery. Abdominal pain was usually not severe, yet 2 of our cases underwent operations for what was believed to be acute appendicitis before transfer to our hospital. Constipation was present in only 7 per cent of the patients.

The temperature curve observed in the great majority of the cases was quite unlike that described as characteristic of typhoid fever. Instead of a step-like rise for about one week, a plateau with small daily remissions for about two weeks, and a step-like decline to normal over a period of about a week, the typical fever in our series was characterized by variations of 5 to 7 degrees within a period of twenty-four hours. Such marked daily remissions were the rule, and the so-called typical "typhoidal" type of fever was the exception.

Physical signs did not follow text book patterns in frequency of occurrence. The most notable

\* Name not revealed due to censorship requirements.



discrepancies were the low incidence of palpable spleens and of relative bradycardia. The spleen could be unquestionably felt in only 7 per cent of the patients. Bradycardia was present in only 13 per cent of the cases. It is known that the pulse rate of children ill with typhoid fever is less often slow than the rate in adult patients. A definitely dirotic pulse was not common. Alopecia did not occur. Sordes of lips and tongue were present only in patients neglected before admission. They are not signs of the disease, but signs of neglect. Half of the patients had a small, slightly inflamed, triangular area at the tip of the tongue with moderate coating of the dorsum, and clean edges. Deafness was noted in 5 per cent of the patients. Unusual odor of perspiration was not detectable except in a few patients on admission, in whom it was attributed to a dirty condition of the body. Rose spots were present in half of the cases. They occurred during the first, second, and third weeks, and were usually present only on the lower chest, abdomen, and lower back, but in 2 cases were on the arms, forearms, and thighs. Abdominal distention was present sometime during the course of illness in about one fifth of the cases. Meningeal symptoms were absent.

The course of the fever observed in our patients will be discussed in connection with the treatment of typhoid fever.

Complications have been stated to occur in 25 to 30 per cent of the cases. Our epidemic ran true to form in this respect, for 22 per cent of the patients had complications. These consisted of intestinal hemorrhage, periostitis, psychosis, pleurisy, and perforation of the ileum. The last 4 each occurred in only 1 patient. It is stated in Tice's *Practice of Medicine* that the occurrence of intestinal hemorrhages is unrelated to the severity of the disease. However, it has been our experience that the incidence of intestinal hemorrhage is directly proportional to the degree of toxemia, for of a total of 14 patients considered severely ill before the onset of the hemorrhage, 7 had hemorrhages; whereas only 3 of 46 patients considered moderately ill experienced intestinal hemorrhage. The amount of blood lost was never more than 500 cc. and was readily compensated for by blood transfusions.

Frequency of relapses has been placed at between 3 and 16 per cent of the cases in various reports. Relapses occurred in 6.5 per cent of our cases. No case had more than one relapse, and the duration of relapse varied between three and five days.

There were 2 deaths in our series: one patient died of toxemia, the other of an intestinal perforation, which was undiagnosed in a comatose patient.

#### LABORATORY DATA

Leukopenia is said to be the usual finding in typhoid fever. However, in this epidemic the characteristic white blood count was one which would pass for a typically normal blood count; namely, 7 to 8,000 leukocytes with 65 to 75 per cent polymorphonuclear cells. Only 21 per cent of the patients had initial white blood counts of less than 6,000. Another 10 per cent had counts of under 6,000 subsequent to the initial count. Initial leukocyte counts of 10,000 or more were observed in 11 per cent of the patients. As a rule the red blood cell count and the hemoglobin content of the blood were within normal limits, but there were a few severely anemic patients, whose anemia was readily cured by blood transfusions. Urine examination disclosed either nothing abnormal or slight albuminuria and very few pus cells.

Most of our patients (70 per cent) were admitted to the hospital during the second week of illness; 16 per cent were admitted during the third week; and 14 per cent between the fourth and seventh days. Blood cultures were positive in 32 per cent of the cases. Bacteria were found in blood taken as late as the twenty-second day of the disease. Half of the positive blood cultures were obtained as late as the third week of illness. Feces cultures were positive in 64 per cent of the cases. They were most often positive in the third week of the disease, but in 1 case were positive as early as the tenth day. Urine cultures were positive in 59 per cent of the cases. When bacteria could be cultured both from the patients' feces and urine, positive cultures could be obtained no earlier from the urine than from the feces. *E. typhi* could not be cultured from blood or excreta of only 4 patients.

Fifty-seven of our patients had had no previous inoculations against typhoid fever; 3 had had one or two inoculations during the fourteen days prior to the onset of illness. Agglutination (Widal) tests were positive in all cases in a dilution of 1:160 or higher. Over four fifths of the cases had agglutination tests positive in dilutions of serum of 1:320 or greater; and almost half of them had Widal tests positive in dilutions of 1:640 or greater. There was no ascertainable relationship between the agglutinations of O and H antigens, except that, as a rule, agglutination of the O antigen occurred in a slightly higher dilution than agglutination of the H antigen. When the Widal test was repeated five

days or longer after the initial test, the titre rose, with two exceptions. It was not considered of diagnostic value to repeat Widal tests in most of the cases, for in 93.6 per cent of the patients *E. typhi* was cultured from blood or excreta or both. A diagnosis of typhoid fever was made either when *E. typhi* was obtained from blood, feces, or urine, or when a pupil of the junior high school involved became sick between February 25 and March 16 with an unexplained fever of two weeks duration and laboratory examination disclosed a positive Widal test in a dilution of 1:320 with a rising titre. Only one of the patients from whose blood or excreta *E. typhi* could not be cultured had had previous anti-typhoid inoculations.

### TREATMENT

A critical study of articles discussing the treatment of typhoid fever results in a feeling of dissatisfaction and a state of scepticism. For example, bacteriophage is stated to be useful in the treatment of typhoid fever by an author who bases his conclusions on the results obtained by another physician, who did not report his results. The latter treated 10 cases of typhoid fever, used no controls, had 1 death and 9 recoveries<sup>1</sup>.

Sulfanilamide was stated to be of value in a series of 7 cases.<sup>2</sup> All were treated with protosil and M. & B. 693; there were no controls. In 3 of the cases, the drug was given at a time when spontaneous improvement is to be expected (on the twenty-eighth day in one case, and between the thirty-sixth and fifty-seventh day and eighteenth and twenty-fifth day in other cases.) As a rule the drug was given over a period of five to ten days before improvement was manifest; hence, it is questionable whether improvement was consequent to the administration of the drug or concomitant with it. One of the cases received an anti-serum as well.

Horse anti-serum was used in a milk-borne epidemic.<sup>3</sup> Seventy-three cases were treated: 20 during the first two weeks of the illness, 13 during the third week, and 40 after the third week. There were no controls. The criterion of a favorable effect was the lowering of temperature within forty-eight hours after administration of serum. The temperature did not necessarily have to return to normal, but had to remain lower than before the injection for at least seven days. Mortality rate was 9.5 per cent. The authors believe that beneficial effects of serum may be delayed seven days. A study of the temperature curves of our cases

revealed that spontaneous recovery in typhoid is likely to take place within less than seven days from any given date after the second week; hence, 53 of the 73 patients were likely to have a spontaneous recovery at the time they were admitted to the hospital.

"Serum was held to have a favorable effect on both the toxemia and the temperature, but assessment of its value on the basis of mortality rate was impossible, since there were no controls or these were inadequate. Similarly the mortality in treated series as compared with that in other outbreaks where no serum has been used is of no value as a criterion of the disease from one outbreak to another. To control the results adequately it would be necessary to observe the effects in a large series of cases when serum was strictly reserved for alternate patients, all of whom should preferably be at about the same stage of the disease.

"This idea has been closely approached in investigations on anti-pneumococcal serum, but up to the present it is far from being realized in clinical experiments with anti-typhoid serum".<sup>3</sup>

The use of serum obtained from horses inoculated with typhoid bacilli was reported by Robertson and Yu,<sup>4</sup> and by Felix.<sup>5</sup> The former mentions no controls and shows no temperature curves. Many patients were treated in the third week of illness. The latter states that fever was clearly shortened and suppressed in 23 cases, but uninfluenced in 20 cases, and that patients might show a lessening of toxemia without an accompanying effect on pyrexia (this is counter to our experience maintained below, i.e., that the presence and degree of fever is an accurate index of toxicity)

In order to judge the efficacy of therapy, we had to ascertain that the most convenient index, the graphic temperature chart, accurately reflected the state of health of the patient. Inasmuch as nurses attending our patients were unanimous in their belief that a patient's toxicity was directly proportional to his fever, the temperature curve became the most important criterion of the value of treatment. Temperatures became normal as early as the twelfth day and as late as the forty-fifth day of illness. Since there is such a long period of time during which fever can subside spontaneously, either by lysis over a period of a week or moderately abruptly within 48 hours, it is obvious that attributing favorable results to any form of treatment without the use of a large number of controls is fallacious.



There are many pitfalls to be encountered in attempting to evaluate the efficacy of treatment in typhoid fever. In view of the fact that all of our patients except one were in the same age group, and same state of nutrition, and were infected by the same strain of *E. typhi*, the variables of age, nutrition, and strain of infecting organism were absent. In addition, four fifths of the patients entered the hospital in approximately the same stage (between the fifth and fourteenth days) of the illness. Eight patients were treated with sulfaguanidine and 19 cases were treated with sulfathiazole. Six patients were given injections of human serum (150 cc. each) obtained from previously inoculated individuals. The remainder of the cases were treated symptomatically as controls.

The patients receiving sulfathiazole weighed between 80 and 100 lbs. They received 4 grams of the drug daily over a period of five days. They were chosen at random, and were no sicker than the controls. If, here and there, a patient treated with sulfathiazole were studied without regard to untreated cases, we might erroneously deduce that the drug had had a favorable effect on the patient. However, when time and time again the fever of control and of treated patients would abate spontaneously during similar phases of the illness, it became apparent that at a certain time during the course of the disease, the fever subsided and the patient felt well whether or not the drug had been used. A review of all the sulfathiazole-treated cases showed that the administration of sulfathiazole had no effect on fever or toxemia, on the occurrence of complications or relapses, or on mortality. One control and 1 sulfathiazole-treated patient died.

It would seem theoretically unsound to treat patients ill with a blood-stream infection by using a drug which is relatively unabsorbable. Eight patients received sulfaguanidine. The treatment of 7 of these was not under our control. The patients weighed between 90 and 110 lbs. Three received 2 grams of the drug daily for four, eight, and nine days respectively. One received 3.2 grams daily for six days; 2 received 4 grams daily for two and three days respectively; 1 received 8 grams daily for two days; 1 received 8 grams daily for eight days. We believe that most of these dosages were inadequate. The use of sulfaguanidine had no effect on the course of illness in any case in which it was given. The number of patients receiving the drug was too small to state whether or not it affected the mortality, relapse, or complication rate. None of this group of patients died or had relapses;

one had an intestinal hemorrhage. It is possible that the use of sulfaguanidine during early convalescence will lessen the chance that a patient will become a convalescent carrier. Investigations along this line are being conducted. No undesirable effects were attributable to the use of either sulfonamide.

The injection of 150 cc. of pooled serum obtained from previously inoculated individuals was entirely ineffectual. The mouse protection potency of this serum is being determined at the present time. However, the result of this investigation is of academic interest only, for one cannot wait for the results of mouse protection tests before using serum from inoculated individuals. The donors of the serum had had an average of  $3\frac{1}{2}$  series of anti-typhoid inoculations. They had all received their last series of injections between two and five months prior to the withdrawal of serum. Therefore, it is reasonable to believe that this group of serum donors possessed as high a degree of immunity as could exist in any group of inoculated individuals.

Blood transfusions did not alter the course of the disease, but seemed to lessen the degree of toxemia for a period of about twenty-four hours. They are indicated when patients are anemic. Otherwise they are hardly worthwhile. Non-specific measures of treatment included a high caloric, semi-soft diet, adequate liquids, and lukewarm sponge baths followed by alcohol sponges given to patients with fevers above 102 F. Cold packs or cold baths were not used.

#### SUMMARY AND CONCLUSIONS

1. Sixty cases of typhoid fever were observed, of which 58 were infected directly by food contaminated by a healthy carrier. There was 1 secondary case. The mortality rate was 3.3 per cent.
2. The symptoms were somewhat unusual in that diarrhea was present in half of the cases. As a rule, diarrhea was mild, consisting of three or four defecations per day.
3. Physical signs differed from those described as characteristic in that relative bradycardia and palpable spleen occurred infrequently. The temperature curve was septic rather than typhoidal in most of our cases.
4. A normal white blood count, rather than leukopenia, was characteristic of the cases in this



series, for only about 20 per cent of the patients had an initial leukopenia; about 10 per cent had an initial leukocytosis, and the remainder had normal white blood counts.

5. *E. typhi* should be sought in blood cultures as late as the third week of illness, for half of our positive blood cultures were obtained in the third week of illness.

6. A study of the available literature reveals that most studies of remedies used in typhoid fever are uncontrolled. A comparison of treated cases with the controls in this series leads to the conclusion that sulfathiazole, sulfaguanidine, and se-

rum from previously inoculated individuals are valueless in the treatment of typhoid fever.

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## EDITORIALS

### TYPHOID FEVER EPIDEMIC

On February 26, 1942, 9 children in Washington Intermediate School in Honolulu developed symptoms of illness. On March 6th these were reported to the Board of Health as being suspicious of typhoid fever. Because of the obvious common denominator (eating in the school cafeteria) and the fact that the water supply has not for many years been responsible for a local case of typhoid fever, a carrier was suspected; the sick students were all isolated, specimens were obtained from all the food handlers in the cafeteria, and the cafeteria was closed.

On March 11th the carrier and one active case in a food handler were identified and isolated. It was learned that the carrier had first been employed in the cafeteria on February 16th. The following week the carrier's father was also found to be a carrier. By the end of the second week in March, 58 cases (in addition to the first 9) had been identified and isolated. Many of these were identified through visits by Board of Health and U. S. Army nurses; 1,869 such visits, to contacts with known cases and to absentees from school, were made—the equivalent of full-time duty for 2 nurses for a year. Out of 79 absentees investigated, 8 were discovered to have typhoid fever. In the fourth week of the epidemic (the third week of March) only 9 cases were reported; and in the fifth week only 2, the last case being reported on March 26th. Of the 74 of these cases connected with the school, 57 were hospitalized within fourteen days or less after the onset of their symptoms. Only 2 known secondary cases developed.

One girl who attended the school, and ate in the cafeteria, on only the 16th, 17th, 18th and 19th

of February, was admitted to Queen's Hospital on March 18th in a moribund condition, and was found at autopsy on March 21st to have died of typhoid fever. This fixed within those limits—because she spent the period from February 19th to March 10th in the Detention Home—the date of her infection at least. Even more helpful was the discovery that the average absentee list of 200 pupils a day had included at least a few of the cases of typhoid fever on every day of the seven weeks' period in question, except one: February 17th. Every case of typhoid fever had been present on that day, and on no other. The carrier was known to have helped prepare sandwiches, but the exact food primarily responsible for the infection was not identifiable.

Five of the cases were isolated in St. Francis Hospital, 10 at the Queen's Hospital, and 63 at the U. S. Army Provisional Hospital No. 3, occupying a part of the Japanese Hospital. Elsewhere in this issue appears a preliminary report of studies made on this large group by Captain Hoagland and his staff. Of the total of 78 cases, 5 died.

Several features of this epidemic recommend themselves particularly to one's attention: Seldom, surely, have so many individuals of so nearly the same age (11 to 15, with 2 exceptions) and size ingested to nearly the same quantity of typhoid organisms from a single known source at so nearly the same time; and seldom, surely, have so many so nearly identical typhoid fever cases been studied at the same time by so unified a medical staff in a single hospital. Seldom, too, has a Board of Health investigator been able



to interrupt the source of infection in a typhoid epidemic on the day the first cases were reported (for the cafeteria was closed over the week-end) or to identify the carrier responsible for the epidemic within 5 days after the first cases were reported. Such an accomplishment means but one thing: prompt action and hard, painstaking work by competent men and women in the employ of, or assisting, the Bureau of Communicable Diseases of our Territorial Board of Health. Thanks to them, we can discuss this epidemic as an interesting and instructive epidemiologic and clinical study instead of a catastrophe.

H. L. A. JR.

### VACCINATION: WHOLESALÉ

My dear Brennecke: I have had your letter of March 31st in which you ask the simple question, "Will you please tell me what the accepted intracutaneous typhoid dose is?" I made some pencilled notes for my answer, but before I could write, the vaccine "blitz" hit us in the midriff. The people had been offered, by the military governor, a three weeks' delay during which private physicians might officially vaccinate them before vaccination became compulsory, and free, at the first aid stations. The members of the Honolulu Medical Society had conceded a reduction of their fee schedule to a dollar a poke each, for typhoid and smallpox, a total of four dollars, the Board of Health supplying both vaccines gratis. This certainly provided an opportunity to test "state medicine" beyond the wildest dreams that Parran ever had; we anticipated that only the idle rich would patronize us, while the great middle class would go for the free vaccine at the aid stations.

However, we missed the boat again, as we did before December the 7th when we said it couldn't happen here. For three weeks we squirted vaccine all day and shuffled vaccination registration cards all night. It was a terrible nightmare, but it proved that the people were not yet ready for state medicine; many people, some with families of six or seven who obviously could ill afford the fee, nevertheless stood there patiently in line—as Dr. Beck of your own island said, "All humanity seems reduced to one long straight line." We

Americans here in Hawaii have been pretty well regimented by now, far more peacefully than I had anticipated, and we stand in a slowly moving line for gasoline, beefsteak, liquor permits, fingerprints, gas masks and all that quite cheerfully, but most of us still demand the right to choose our own doctor, even if we have to pay for it.

So that's the reason I didn't get around to writing you until now, when it is probably too late. You probably have learned from experience—as we did—some of the lessons of wholesale civilian vaccination.

So back to your question—"What's the accepted intradermal typhoid dose." What do you mean, "accepted?" Accepted by whom?

The Army officially recognizes only one means of typhoid vaccination: 3 subcutaneous doses of  $\frac{1}{2}$  cc., 1 cc., and 1 cc. respectively. The interval between doses may not be shorter than 5 days nor longer than 10 days. This applies to the initial vaccination, as well as repeated vaccinations.

The Army, here, however, recognizes the certificates of the local Board of Health.

The Board of Health officially simply does not ask physicians to designate the route used in giving typhoid vaccine. Unofficially it accepts 3 intradermal doses of vaccine, spaced as above for time, of 0.1 cc. each. For a while they advocated the first dose as 0.1 cc., the second dose as 0.15 cc. and the third dose as 0.2 cc. 0.2 cc. is rather apt to produce local necrobiosis—very pretty word, but not so pretty on the patient's arm—so we reverted to the 0.1 cc. dosage for each of the 3. This applies to the initial, as well as to the re-vaccination.

The Navy, so I am informed, recognizes 1 dose of 0.1 cc. intradermally as a "booster" dose, in previously vaccinated people; for initial vaccination it recognizes the subcutaneous army method as well as the Board of Health method of three intradermal doses of 0.1 cc. each.

What the Marine corps does, I do not know. But you see that we over here still have at least relative unanimity of opinion. We are agreed that vaccination should be done!

Aloha,

FENNEL



## Settled out of court (Domestic Relations)

How often domestic ruffles are caused by endocrine disorders and settled by treatment with estrogenic substances only the attending physician can say. However, this much is well known. The irritability and emotional instability so often accompanying other symptoms of the menopause can be materially relieved in many cases by administering properly adjusted doses of suitable estrogenic preparations.

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- 1936** *Vitamin B<sub>1</sub> was synthesized in the Merck Research Laboratories.*
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- 1938** *Alpha-Tocopherol (Vitamin E) was identified and synthesized by Merck chemists and their collaborators in other laboratories.*
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- 1940** *Vitamin B<sub>6</sub> Hydrochloride Merck (Pyridoxine Hydrochloride) became available in commercial quantities.*
- 1940** *Alpha-Tocopherol Merck (Vitamin E) was made commercially available.*
- 1940** *Vitamin K<sub>1</sub> (2-Methyl-3-Phtyl-1, 4-Naphthoquinone Merck) was made commercially available.*
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- 1940** *Pantothenic Acid, member of the Vitamin B Complex, was identified and synthesized by Merck chemists and their collaborators in other laboratories.*
- 1940** *Calcium Pantothenate Dextrorotatory, a physiologically active form of Pantothenic Acid, was made commercially available by Merck & Co. Inc.*



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# PROGRESS IN INTERNAL MEDICINE

## SHOCK

The syndrome of shock is of importance to all physicians at all times, and the present heightened interest in traumatic shock is likely to continue for an indefinite period. The surgeon and the internist see, in this disorder, similar clinical pictures occurring under quite dissimilar circumstances. Until recently a number of modifying terms have been applied to it, such as "surgical", "traumatic", "wound", "toxemic" and "medical"; and a still greater number of theories have been presented to explain the occurrence of one or another of these forms of shock. A recent article by V. H. Moon (*The Vascular and Cellular Dynamics of Shock*, *Am. J. Med. Sci.* 203:1 [Jan.] 1942) brings the whole clinical picture of shock, its variable etiology, its physiological explanation, and its accompanying pathological changes, into clear relief. It is well worth the study of every practitioner of medicine.

### Etiology

Dr. Moon's thesis is that shock is circulatory failure of capillary origin. It may occur after severe traumatic injury, prolonged or complicated surgical procedures, or extensive burns of the skin. It occurs also incidental to abdominal emergencies such as strangulation, perforation, intestinal infarction, or pancreatitis, and is seen in intoxications, infections of unusual severity, serum disease, and in acute poisoning of diverse kinds. The same syndrome may be produced experimentally by trauma, intestinal manipulation, burns, and by tissue abuse in animals, or by injection of various capillary poisons, such as alkaloids, diphtheria toxin, tuberculin and other bacterial products, foreign proteins and products of protein cleavage, histamine, bile and cholic salts, venoms, and many drugs, chemicals and poisons.

### Pathogenesis

These conditions and substances have one common effect, that of producing relaxation of capillaries and venules and increased permeability of capillary endothelium. There is caused thereby leakage of the plasma through the capillary wall, lowering the total blood volume. Yet, at the same time, there is increased volume capacity of the

vascular bed due to the dilatation of venules and capillaries. Thus there occurs a disparity between volume of blood and volume capacity of the vascular bed, which, if marked, impairs the systemic circulation. There is reduced delivery of oxygen to tissues and anoxemia results. This tissue anoxemia further increases capillary atony. Thus is set up a vicious circle of progressive pathological changes.

Activation of the sympatho-adrenal system compensates for a time by stimulation of myocardium, mobilization of glucose from liver, contraction of peripheral arteries and discharge of red blood cells from the spleen and other reservoirs. If compensation is inadequate, there is a decline in blood pressure, the circulatory deficiency becomes manifest clinically and parenchymatous organs undergo morbid changes which may be irreparable.

### Pathology

The pathological changes described as characteristic by the author are: dilatation and engorgement of capillaries and venules of viscera (liver, kidneys, gastrointestinal mucosae, lungs, and of the serosae), petechial hemorrhages in these tissues, in the meninges, and occasionally in the brain; edema of the soft tissues, and effusions in the serous cavities if death is somewhat delayed; and acute granular degeneration, often with focal necrosis, in parenchymatous organs.

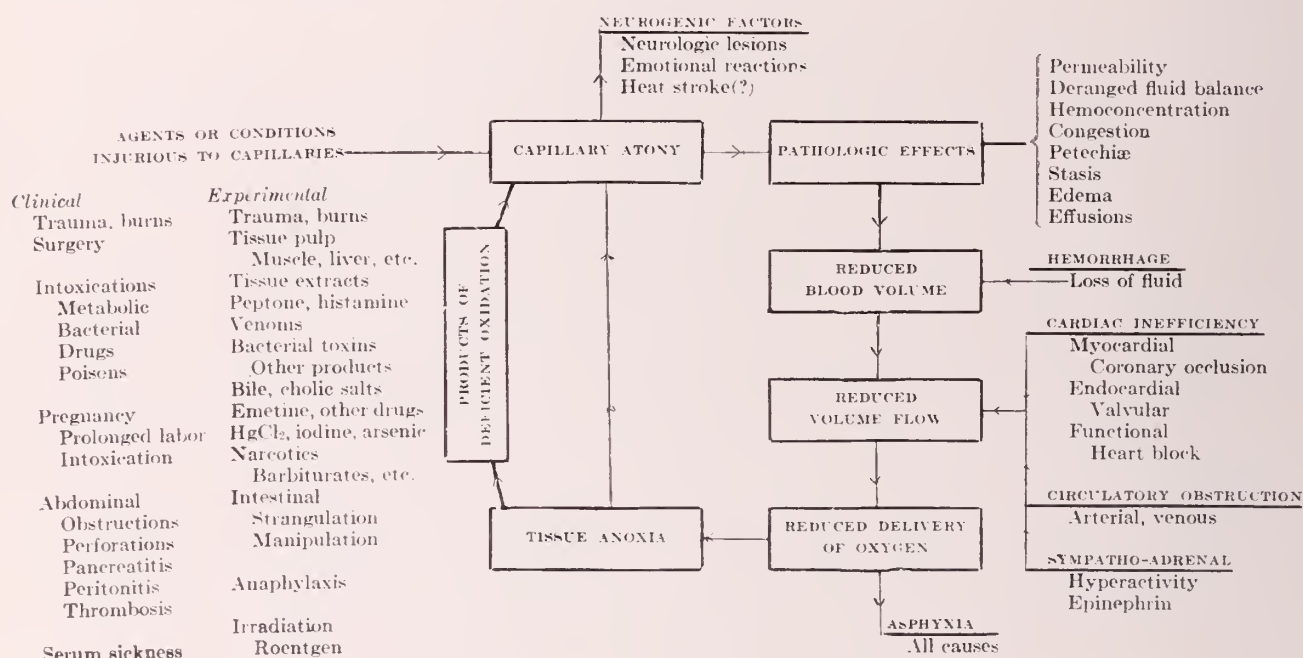
### Pathologic Physiology: Experimental Shock

Dr. Moon discusses the confusion existing in regard to experimental shock—due not only to attempts to differentiate traumatic and toxic shock, but also to inadequate differentiation between the effects of hemorrhage (and of anesthesia in experimental animals) and shock. The similarities between shock and the effects of hemorrhage include sympatho-adrenal manifestations such as stimulation of myocardium, vasoconstriction, cold extremities, low temperature, increased blood sugar, dilated pupils, and perspiration; they also manifest, in common, decreased alkaline reserve, decreased serum protein, increased respiratory rate, thirst, decline of blood pressure, and finally death due to inadequate circulatory function.

Shock, however, manifests the following physiological changes which do *not* occur in association with hemorrhage: increased flow of lymph and tissue fluid, disturbed fluid balance, progressive pulmonary edema, impaired absorption from gastrointestinal tract and from tissue, vomiting, and frequently diarrhea. The most important differ-

ated by the existence of other factors which aggravate the condition: neurogenic factors, hemorrhage, myocardial inefficiency, or overactivity of the sympatho-adrenal system. The interrelationship of these factors in the pathologic physiology of shock is clearly presented in the accompanying diagram, taken from the paper.

THE RELATIONSHIP OF VARIOUS FACTORS IN THE PATHOLOGIC PHYSIOLOGY OF SHOCK. THE RECIPROCAL EFFECTS OF *Capillary Atony* and *Tissue Anoxia* GIVE THIS MECHANISM THE SELF-PERPETUATING QUALITY OF A VICIOUS CIRCLE.



ences occur in the blood: whereas hemoglobin, red blood cells, and certain salts are *decreased* in hemorrhage, in shock they are *increased*. Hemoconcentration is, then, the most important differential point.

### Clinical Shock

The clinical picture of shock may be compli-

Dr. Moon's definition of shock is an excellent one to memorize — "*Shock is a form of circulatory failure, not central but peripheral in origin, characterized by decreased blood volume, decreased volume flow and hemoconcentration.*"

S. E. DOOLITTLE, M.D.

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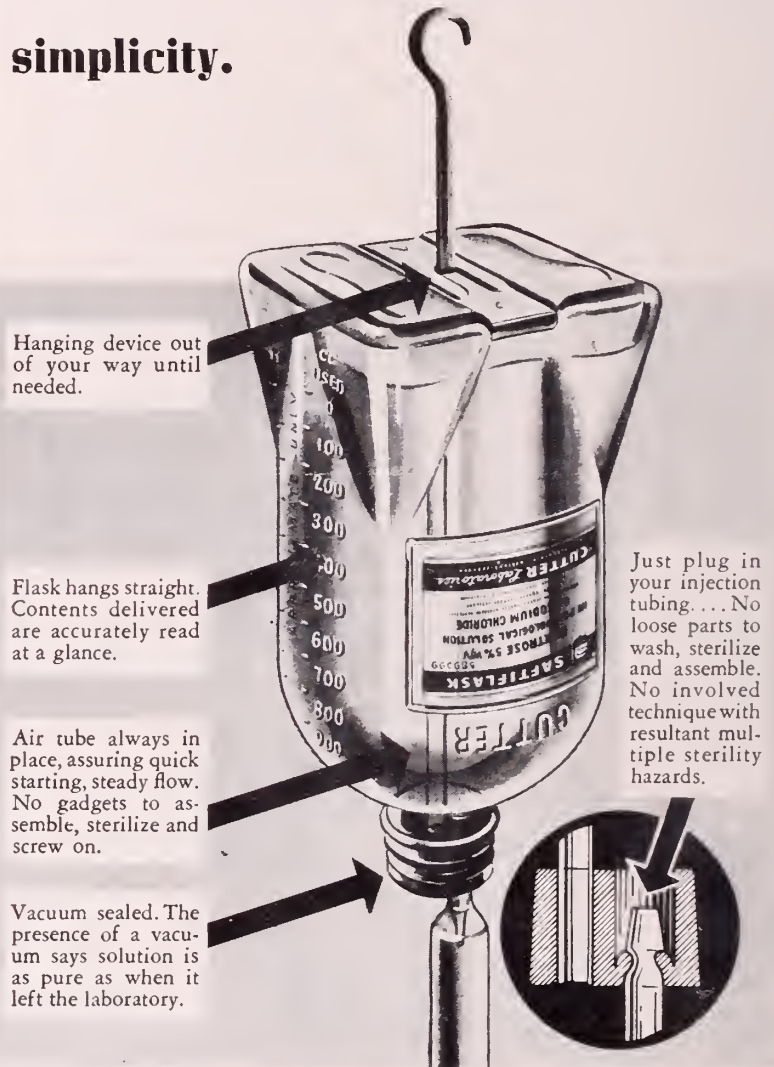
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# RECENT ADVANCES IN SURGERY

## AN ORTHOPEDIST GROWS UP, or,

**The bowlegs and pigeon toes and the knock-knees and pronated feet of childhood are problems in physiology, not pathology.**

One hot California summer day, nearly half a century ago, two small boys stood in the dust under a peach tree munching peaches and arguing about their feet. One of them had observed that their footprints were unlike. One boy's looked like misshapen pancakes with five little drippings on one end. The other's had five toe marks, a ball, a heel, and a slender connection along the outer side. Each contended his feet were the right kind; each asserted that his feet gave him no trouble.

The argument unsettled, each grew his untreated way to manhood. The boy with the pancake feet became a medical student. On a vacation swim he consciously saw for the first time in a score of years that his footprints had now become like his boyhood chum's.

As an interne he saw many rachitic legs—bowed, knocked, and twisted—whose metaphyseal areas looked like ragged cups.

As a nursery school examiner at the University of California in Los Angeles he saw children from superior homes. All of them were knock-kneed and flat-footed. He observed that usually the left knee was more knocked than the right, save in a left-handed child.

A neighbor's toddler was terribly bow-legged and pigeon-toed. He followed the masters in advising bendings and twists, but the family was shiftless and did nothing—and a year later the legs were straight.

A small son crept into the doctor's home. He too had pancake feet and terrible knock-knees. The pediatrician stormed at him because the legs were such a terrible advertisement for a "straight-child" doctor. But the doctor had begun to believe that perhaps the condition was physiological, not pathological. He remembered himself, and refused to do anything. As the boy grew towards puberty the legs became straight and the feet developed their arches.

He had observed that the knees of these children were loose and literally knocked as they wobbled back and forth. In the knock-knees the looseness was on the inner side, in the bowlegs it was

on the outer side; he presumed it was capsular looseness.

Then he observed that by everting the heels of the knock-kneed the knocking was decreased, while by forcibly inverting the heels of the bow-legged, the bowed legs were made straight. Only the gastrocnemius crosses both these joints. So, then, the deformities were caused not by relaxed ligaments but by a lack of muscle tone in one or the other of the heads of the gastrocnemius.

Muscle tone is, physiologically speaking, postural tone. It is an acquired characteristic, as we all know from watching a child develop. It now appears that it may not appear in all parts of a several-headed muscle simultaneously.

If the hypothesis we have developed is true, it follows that if a bow-leg is corrected by osteotomy when the lesion is not bony but physiological, then, as the physiology takes up its normal place, the deformities should be *reversed* and be *bony* in character. Such actually occurs.

To this picture (and apart from rickets) I have seen certain exceptions. Three pre-adolescent boys have straight legs but markedly everted heels and total absence of the so-called arch. X-rays of the weight-bearing feet show that the axis of the os calcis parallels the floor, the talus points nearly straight down and the scaphoid is displaced dorsally. If one turns the heel into its normal position the great toe and first metatarsal lie completely away from the floor and the fifth metatarsal parallels the floor. In other words, these feet are essentially not pronated feet but supinated feet.

Then there is the sexual difference. A bow-legged woman is a freak, for most women are knock-kneed. Conversely, most boys and men are slightly bow-legged.

In short, natural, normal babies tend to be bow-legged and pigeon-toed, natural pre-school children tend to be knock-kneed and flat-footed, and natural pre-adolescent children tend to be straight-legged and normal-footed. Adult women normally tend to be slightly knock-kneed and normal men slightly bow-legged.

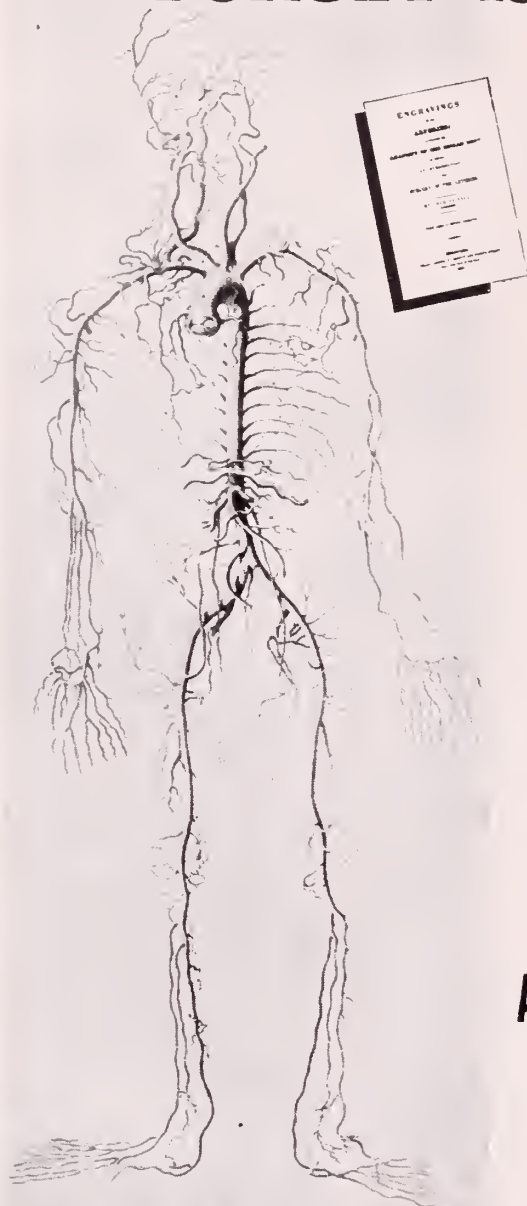
If, then, life is as I have observed it, corrective heels, "orange peel" pads, plates and surgical interference are utterly unnecessary. Orthopedists and doctors generally should let nature do her work.

STEELE F. STEWART, M.D.

*vasoconstrictor*  
*circulatory stimulant*

*hemostatic*  
*resuscitant*

# THE HORMONE THAT DOCTORS FORGET IS A HORMONE



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# CLINICO-PATHOLOGIC COMMENT

## SULFONAMIDE DETERMINATIONS: A POTENTIAL SOURCE OF ERROR

Prompted by an observation made by Dr. Palma<sup>1</sup>, we performed the following little experiment. To some pooled human serum, we added sulfadiazine to an approximate concentration of 2.5 mgm. per cent. Of this, four 2 cc. samples were removed; one was untreated, to one 1 drop of a 1% solution of Novocaine was added; to one, 2 drops were added; to one 5 drops were added. These samples were then tested in the usual fashion, as for blood concentration. They gave, respectively, the following readings in mgms. per 100 cc.: 2.5; 15.0; 26.5; 55.0. The lesson and the precautions to be taken are obvious.

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## SMALLPOX VACCINATIONS

We have learned some lessons in this vaccine "blitz" episode. As to smallpox: the batch of vaccine we had down here was certainly potent, which speaks well for shipping facilities. Smallpox vaccine deteriorates rapidly at higher temperatures, and particularly at fluctuating temperatures. It should be kept under 5 C, and can't be kept too cold; in other words, freezing it is probably the best method of preservation. Each capillary tube is supposed to have enough for 1 vaccination; but we got from 2 to 6 out of every one. It takes only the tiniest drop of a potent vaccine to get a take. A needle point pressed through the epidermis within the drop of vaccine is sufficient. It is rather important not to get multiple needle-penetrations farther apart than one millimeter; if these microscopic *pukas*<sup>\*</sup> are farther apart, a pretty sore arm may result. Secondary infections were quite rare. It was interesting to see how the immune reactions the accelerated reactions, and the primary reactions were distributed. Practically all people under 20 had immune reactions; those people between 20 and 40 years of age could be divided into the local, or *kamaainas*, and the *malihinis*, newcomers to the Island. The local people

almost all had been vaccinated upon entry into school, and presented either immune or accelerated reactions, but many of the *malihinis* came from California, where they had not placed enough emphasis upon vaccination on entry into schools, because of Christian Science and other cults; so that in this group of young adults there were many primary "takes". It was in this group that I anticipated some cases of post-vaccinal encephalitis, but happily my fears were not justified. In the adults over 45 we had almost 95% primary takes, except in that group of elderly Japanese more recently vaccinated upon their arrival in Hawaii.

Several cases that had had smallpox many years ago and bore unmistakeable scars showed primary takes, which means that we must somewhat change our ideas on the duration of immunity following smallpox. It certainly is not for life, and, by inference, we probably must also change our attitude toward immunity in typhoid and other diseases.

In the beginning we were somewhat hazy on what the contraindications for smallpox vaccination should be besides the very obvious things such as acute illness. A general dermatitis, eczema for example, should be considered a rigid contraindication. Not only should these individuals, particularly if they are children, be excused from smallpox vaccination, but so should all of their siblings, lest there be an accidental vaccination of these children in the home. However, any skin abnormality, with a break in the skin, is at least a temporary contraindication for smallpox vaccination.

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## TYPHOID VACCINATIONS

It really is a pity that there were so many methods of typhoid inoculation used; some day when a mass study is made of the results there will be a hodge-podge because the method of vaccination in an individual case is unknown. Does intradermal vaccination really protect? This is a question which time alone will answer.

In marked contrast are my two experiences with typhoid vaccination: my first one in Round I of the World War, and my second one in this Round II of the World War. In the first one we

<sup>1</sup> Palma, J., and Smallwood, W. C.: The Sulfonamides, Proc. Staff. Meet., The Clinic 8: 23 (May) 1942.

<sup>\*</sup> *pukas*: Hawaiian for holes.

used the vaccine made from the Rawlings strain of typhoid bacillus (which I suspect never was a real typhoid bacillus) which Colonel F. F. Russell had inherited from the British. Its antigenic value probably was rather low. However, subcutaneous vaccination in the Boer War and in our own 1917-1918 episode proved it of value. The Mexican Border incident added para A and para B to the vaccine, and also a lot of toxicity. In the beginning of that first episode straight typhoid vaccine was used. Subsequently para A and para B were alternated with the straight typhoid. Subsequent to that, the typhoids para A and para B were combined to make the triple typhoid vaccine, and it was administered in .5 cc., 1 cc. and 1 cc. doses subcutaneously. Soldiers and their vaccination registers were forever being separated, and that seriously delayed embarkation. There was then developed, and adopted, a lipo-vaccine, with the bacterial content of the three doses of saline vaccine—and even more—dried, pulverized and suspended in cottonseed oil. The soldier was given the one shot and sent on his way rejoicing (?). This method was discarded after the War because the sterility of the oil could not be controlled. A number of years later the Army used only typhoid vaccine, having discarded the A and B. When the Army Medical Corps anticipated service in foreign countries, the A and B were again used.

In the meanwhile, however, a new strain of typhoid bacillus, known as the Boxill strain, had been discovered. It has unusually high antigenic value. Of the para A and B cultures I know less. In the old days, when we were testing out in the laboratory the efficacy of the Rawlings strain for typhoid, and the A and B's that were used at that time, we had rather crude methods of examination, but we used all that were available. The animals and men that were under experiment were tested by agglutination, complement fixation and opsonic index. Animals were used only to control the toxicity of the vaccine. In our agglutination reaction we made an effort to standardize the agglutinable culture, but we had never heard of O agglutinins, or H agglutinins, or O antigens or H antigens, and we certainly had not dreamed of Vi antigens. The agglutination reaction, in measuring the immunity produced in an individual is very much like tickling a flea in the ribs with a telegraph pole: rather crude. This new vaccine strain, the Boxill strain, apparently has a large amount of somatic and flagellar agglutinins, that is, O and H; and in addition to that, because the vaccine seed is frequently put through animals, it has a

high Vi antigen. That probably is the most important part of the vaccine strain. I have made triple typhoid vaccine here with this Boxill strain, and in testing out the toxicity of my completed vaccine in the rabbit, have found the rabbit to respond with tremendously high titers to subcutaneous inoculation and to almost unbelievable titers after intravenous inoculations. All of this leads me to believe that the use of the present vaccine is going to be highly efficacious, not only because of the high antigenic value of the organism used, but also because I have always been convinced that the histiocytic system is the producer of antibodies, and that the cutaneous tissues, being loaded with histiocytes, are the ideal place to put the vaccine. Personally I think that all vaccines are best administered intradermally. We are getting away from the thought of total bacterial substance, diffused in the whole body, and leaning toward the thought of concentrated antigen in contact with the maximum number of cells of maximum antibody producing capacity.

Today our laboratory experiments, measuring immunity produced, use finer tools for the work. With the advent of this highly virulent strain of typhoid bacillus, plus the use of mucin to make the intraperitoneal inoculations in mice, we have a protection experiment that is probably a highly accurate measure of immunity. A number of recent publications have pretty clearly established the fact that intradermal vaccination with moderate doses produces quite as much immunity as the more toxic subcutaneous vaccinations. And these reports further indicate that the time factor between the doses is of relatively little importance. In other words, 5 days', 10 days' or even 30 days' lapse between doses makes no appreciable difference in the final outcome of immunity. I am very sanguine about the ultimate outcome of this widespread intradermal inoculation in Hawaii.

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## CULTURES IN THE FACE OF SULFA COMPOUNDS

With the widespread, almost universal, use of the sulfa drugs, the bacteriostatic properties of these drugs must most seriously be taken into consideration in culturing blood or tissue fluids of patients receiving them. Janeway advocated the addition of *p*-amino-benzoic acid to the culture media in such cases. We have routinely been adding this chemical to all our culture media in a concentration of 7 mgm. per cent, and we get

the impression that it greatly enhances bacterial growth, even where sulfa drugs are not concerned. This we have noted, both with Brewer's medium and with the new transparent chocolate agar, mentioned in a previous issue. More recently it has been said that procaine in similar concentrations may be substituted. That seems quite logical, since *p*-amino-benzoic acid forms the basis of various local anesthetics, e.g.; novoaïne and stovaine. We are so satisfied with *p*-amino-benzoic acid, that we shall not experiment with procaine. We have been using the Eastman P14 (Practical) form of this chemical, and we suspect that possibly some of the allied impurities it may contain also act as an accelerator of bacterial growth. So we shall not change to procaine unless we run out of the acid—which is unlikely, since 200 grams go a long way when only 7 mgm. per cent is desired.

This may be analogous to Sabouraud's medium. It is generally felt by mycologists that for preparing Sabouraud's maltose agar, pure maltose and American peptones are not a satisfactory substitute for Chassaing's peptone and Chanut's crude maltose, very likely because of impurities present in the latter. Our own experience tends to confirm their opinion.

The use of *p*-amino-benzoic acid in culturing organisms in the presence of sulfa drugs has opened up some new avenues of investigating the mode of action of these drugs. It is held that bacteria must have or make *p*-amino-benzoic acid for growth, and that the sulfa drugs inhibit this capacity for manufacturing the acid. No doubt much

interesting work will be published on this subject in the near future.

### TRANSPARENT CHOCOLATE AGAR

We have tried the new transparent chocolate agar, and found it good beyond expectations, in growing and identifying gonococci. We make it in 200 cc. lots, as follows:

Make up 200 cc. Difco Proteose #3 Agar, to which is added 0.2 grams of soluble starch and 15 mgm. of *p*-amino-benzoic acid. This is placed in a 250 cc. centrifuge bottle and autoclaved. Thereafter it is placed in the 56 C water bath. When it has cooled to that temperature, 10 cc. of citrated human blood (sterile) is added. The contents are mixed and the bottle is brought to 85 C in a water bath, and held there about eight to ten minutes. It is then centrifuged at about 2000 RPM for about five minutes, when the clear, supernatant medium is decanted into the sterile dispenser. We dispense into sterile flat-sided "Ovals"—2-ounce medicine bottles. The bakelite screw caps have a 5 mm. perforation, and the paper inner liner has been replaced by a rubber one cut from inner tubing, so that, with a hypo needle, the air may be withdrawn and replaced by a mixture of 10% CO<sub>2</sub> in air.

This new medium gives excellent visibility of the "dewdrop" colonies, and we have the impression that it, with the addition of *p*-amino-benzoic acid, gives a much stronger oxidase reaction when the dye, *p*-amino-dimethyl-aniline monohydrochloride, is added.

Culturing and identifying gonococci now seems to be a cinch. It is said to be equally useful for meningococcus; we hope we may not have opportunity to try it.



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# EMERGENCY MEDICAL SERVICES

(FORMERLY MEDICAL PREPAREDNESS)

## MEDICAL SUPPLIES

Discussion by Capt. Paul Nixon, Controller of Civilian Medical Supplies, Hawaiian Medical Depot, Fort Shafter, at a meeting of the Honolulu County Medical Society, Thursday morning, April 16, 1942.

We knew some time prior to the Blitz that, should such a thing occur, it would mean the immediate freezing of all civilian medical supplies under the control of our office.

Our first job was to set up an office system that would work. It was no simple job to select and to train employees who had no previous knowledge of medical supplies. This has been done and the office functions well. We do not have a large amount of medical supplies in general and, if we are cut off from supplies on the mainland, the supplies here will have to be stretched as far as possible. As a whole, the medical supply situation is not bad. We can get along for a long time—but only by controlling such supplies as are available and by everyone keeping purchases down to actual needs.

We have a control inventory, based on stocks reported by all the wholesalers in town, covering some 3,000 to 5,000 items. This is accurate within three days. We know where every item is; how short we are getting; when to limit sales and when not to.

There never has been a time since December 7th when you doctors or your patients could not buy anything in Honolulu that could be bought before. We control the amount but we never have denied anyone in Honolulu any particular item of medical supply that was necessary.

### Ordering

There never has been issued a "blanket O.K." to anyone for the procurement of medical supplies. A routine has been established as follows: You place your order with the wholesaler; he makes out an order in triplicate and sends it to our office. It is processed through our control section, edited, and checked out; then goes back to the dealer the next morning. It takes twenty-four hours to go through our office. In cases of emergency, all you need do is to get a release from our office over the telephone. If your wholesaler does

not have a given item, we suggest that you call our office. We will tell you where any item is available in town. The office is open twenty-four hours a day.

(The following remarks are replies to specific questions raised by the members.)

*Codeines* There is no objection to buying a monthly supply instead of placing repeated small orders. We see no objection to your keeping a reasonable stock in your offices if proper storage space is available. Unless an order for any item is obviously excessive, our office will not question it and, even then, if you can give us an acceptable explanation, it will be given consideration. It must be realized, however, that if we allow one person to buy all our supply, the rest must do without.

*Syringes*: These have been frozen because of the demand for the immunization program. A few shipments have been received and, if not already released, they will be in the near future. Just because an item is frozen is no reason why you cannot have it if you need it and tell us about it.

*Sheets*: These are frozen, but I hope they will be released soon. Again, if you have a definite need for them and nothing else will serve the purpose, we will give them to you.

*Bandages and Cotton*: There should be no difficulty in getting these at retail stores. All we ask of retailers is that they not overstock. We do not control the retail stores; we control the wholesalers. A good stock is available.

*Rubber Goods*: The O.P.M. restricted the use of rubber but they probably will never cut down on it to the point that an actual hardship will exist in necessary medical supplies. However, these items must be used sparingly and taken good care of. A substitute for hot water bottles is being worked on by a local can company. (They now state they cannot manufacture a satisfactory substitute locally—Ed.)

*Substitutes for Certain Products, i.e., Lysol, etc.*: We do not plan on issuing bulletins on what is and what is not available. If you want a substitute, phone our office to learn if and where the item

you desire is available. That goes also for drugs present in limited quantities. Our stock depends solely upon transportation from the mainland so we must consider all stocks more or less limited.

*Rubbing Alcohol* is not frozen. This item is available locally. Alcohol is manufactured in Honolulu that is perfectly satisfactory for everything except laboratory work. We are approving priorities on grain alcohol only.

*Grape Juice*: This item comes under the food administration and I do not know what, if any, restrictions have been placed on it.

*Vitamins*: Our stock of polyvitamins is rather limited in the larger sizes. However, sufficiently large stocks have been cleared and are on their way down. The smaller sizes are still available in fairly large amounts.

*Sulfa Drugs*: We have restricted the sale of sulfa drugs to and by retailers. They are easier to control while in the wholesalers' hands.

*Poisons*: All poisons require a specific release except when you write a prescription containing poison. We ask you not to write prescriptions for Lysol, cyanide, and bichloride except where absolute necessary. Bichloride, of mercury we will not release to anyone except for use under a doctor's supervision. I think the poison situation is clearing up a little.

*Priorities*: We edit the wholesalers' orders to the mainland and designate the priority. We have divided medical supplies into three classes for the purpose of determining priorities: critical, essential, and secondary items. Critical items are those which are getting scarce, but an item that is critical today may not be critical tomorrow depending upon how much comes in. We are trying to build up certain stocks and I think we are getting along well.

There is absolutely no reason for all the fear and trembling which exists about buying medical supplies. People can buy anything they could ever buy if the retailer or wholesaler has it. If there is an emergency we will release such amount of a given item as may be necessary. If it is a poison the purchaser has to have a specific release; if it is a narcotic the purchaser must have a doctor's prescription in duplicate.

## FOOD NEWS IN HAWAII

From all indications the recent shortages of butter and meat are merely an indication of what is to come. The Army decides what shall be shipped and where it is going, but the Navy decides when it shall be shipped, depending on clear lanes. In consequence ships leave unloaded or stand by waiting until perishables are spoiled. Under the circumstances a certain amount of this is inevitable.

More and more of the necessary foods will be imported by the Federal Surplus Commodities Corporation, a government organization which is better able to deal with the Army and Navy for shipping space than can the local merchants.

The F.S.C.C. distributes its buying among all producers, and unfamiliar brands will consequently appear on the market. Dehydrated foods will appear in increasing numbers. Ready prepared cereals will almost certainly disappear from the market because of their shipping bulk. Whole wheat cereal or rolled oats will be available.

In the absence of certain foods and specific brands of foods, it is well for the physician to be prepared to recommend substitutes. Physicians have much more influence on nutrition than many of them realize. Specific foods mentioned by them are used by patients to the exclusion of other brands which may be just as satisfactory. This is particularly true of evaporated milks. Many doctors automatically say "Carnation" as a synonym for all brands of evaporated milk, and patients will use that brand exclusively.

## Fruit Juices

Another instance is our habitual use of "orange juice" for infants and invalids. Many other fruit juices are as satisfactory. Special emphasis is needed on this point just now. Oranges are being brought in because of popular demand, yet shipping conditions are such that from 30% to 50% of each shipment is spoiled when it arrives. This space might better be used to ship foods for which no local substitutes exist. Locally produced papaya, guava, pineapple, mango and other fruits are perfectly satisfactory sources of ascorbic acid.

A recent study by Besy and White, of Harvard Medical School, emphasizes the daily need of school children for the amount of ascorbic acid found in 3 ounces of citrus or tomato juice (calculated at 15 mgm. per ounce). Blood plasma levels were maintained on that intake and fell below normal when the citrus juice was omitted.



Pineapple is popularly considered an acid fruit. Large amounts eaten at one time may have an irritating effect on the mouth but most people can take normal amounts regularly to advantage. Bowes and Church report a 6.8 excess of base for fresh pineapple and 2.9 excess of base for canned pineapple.

A concentrated orange juice, frozen and canned, is now being used at Queen's Hospital, and is quite satisfactory.

The University of Hawaii Agricultural Extension Service is giving home bottling demonstrations to interest housewives in conserving as much as possible of our guava crop. One suggestion made was that a neighborhood or the parents in a school hire a truck to go out and pick the guavas for the group, thus saving gasoline. It is well to remind ourselves at this time that the watery extract of guavas contains 100 mgm. percent of ascorbic acid. Orange juice ranges from 26 to 45 mgm. percent. The public should be urged to use all available guavas.

### Butter and Substitutes

Margarine is ordinarily considered the best low cost substitute for butter. However, it is possible that the F.S.C.C. will not import it at all, leaving it to the regular agent. This product is so tied up with regulations designed to protect the dairy industry that importation is difficult. If coloring matter is added the tax would make the price exceed that of butter.

The University Extension Service has developed a method for home manufacture of palm butter from coconuts. Ten coconuts make a pound of butter. Color and vitamin A are added by means of a fatty extract of the lipstick plant.

### Vegetables

Canned turnip greens are appearing in the markets. The price is lower than that of spinach and the food value is greater, especially in calcium, iron, vitamin A and vitamin C.

### Fish

There are now in many markets tall cans and flat oval cans of grilled pilchards in spiced tomato sauce. This is a fish related to the sardine and Booth labels the cans pilchards or sardines interchangeably. Pilchards is the name preferred in England and the stock we have here was meant for Lend-Lease shipment to England. The price

is 15 cents or 2 for 25 cents and the flavor is quite good. At that price this is one of the cheapest sources of protein. They may be used in salads, sandwiches or in casserole dishes mixed with potatoes, other vegetables or cereals, or simply broiled.

### Sweets

Casual observation would indicate an increased desire for sweets since December 7th. Candy is almost unavailable and the shelves are rapidly being depleted of jams and jellies. Children now are buying two or more lunches, to the embarrassment of the cafeterias, which were not prepared. Apparently their extra nickels now go for hot food in place of candy which is no longer available at the corner store.

The increased home production of jellies, jams and preserves would seem a wise move which physicians might suggest to patients. Guava jelly retains much of the vitamin C of the watery extract used in its preparation. The University Extension Service reported it as containing 60 mgm. percent of ascorbic acid.

Any of the marmalades are more valuable food adjuncts than jellies or syrups, and may be made from any of the local citrus fruits. Hawaiian oranges, pomelo, grapefruit, rough skinned lemons, limes or Chinese oranges might all be used.

### Milk

There seems to be a tendency to shift from evaporated milk to fresh milk in infant formulas. The price of fresh milk has risen and a further rise has been announced. Evaporated milk has so far not risen in price proportionately. For many low income families price is a definite factor tending toward reduced use of milk. A large stock of evaporated milk is on hand; the brands are unfamiliar, but the quality of all is good. In view of comparative bulk, it is possible that further curtailment of shipping will result in reduction of cattle feed rather than of evaporated milk. If evacuation becomes a necessity, supplies of fresh milk will, at least temporarily, be completely cut off. Lack of adequate refrigeration at many evacuation points also needs consideration. In these circumstances, evaporated milk would be more convenient to transport and store, as well as safer for the infant.

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## PROGRESS REPORT FROM OFFICE OF CIVILIAN DEFENSE, HONOLULU

### Island of Molokai

No actual work has been started yet but plans are made to splinter-proof and expand the 3 existing hospitals. The capacity of Shingle Memorial Hospital is to be expanded, and the adjoining homes, turned over by the Hawaiian Homes Commission, are to be remodeled and used for hospital and storage purposes. The Libby McNeil & Libby Hospital at Maunaloa can be expanded and the club house equipped to take the overflow, or to be used for evacuated patients. Supplies are being put in for that purpose. The County Hospital at Ualapue, which has only 7 or 8 beds, will have some remodeling done to expand the facilities for surgery. The adjoining school and a nearby cottage will be transformed into ward space for this hospital.

All of these plans are tentative and are awaiting clearance with the Army authorities.

The C. M. Cooke Home at Puukolea has already been provided with provisional beds, kitchen equipment, etc., it is well situated, and with very little work can be turned into a hospital.

There are five first-aid stations planned for the islands and some supplies have already been distributed. The personnel is all volunteer and is already in process of training. Mrs. Cooke, the only qualified first-aid instructor on the island, has this in charge. They have ambulances, drivers and litter bearers. No nurses are available for these stations; there are only 7 nurses on the island and only 3 doctors. These will be required to man the hospitals in case of emergency.

### Island of Hawaii

In Hilo they have set up 15 first-aid units of a highly mobile type, with a central casualty station and headquarters. Dr. Walter Loo of Hilo is in charge of the first-aid set-up, and there is one nurse in the central office. Each mobile unit is composed of two ambulances, attended by drivers and 5 litter bearers.

Throughout the island the plantation doctors are organizing similar mobile units. These are being furnished with supplies from the O.C.D.

No actual work has so far been done on the expansion of hospital facilities since no material is available for either remodeling or splinter-proofing. Plans are under way, however, and will be undertaken when materials can be obtained.

### Island of Kauai

Building of bomb shelters and splinterproofing is already well under way at the Mahelona Hospital and at Wilcox Memorial. The school building at Huleia is being remodeled and when completed will be a 150 bed hospital to serve the Lihue district. It is to be put into operation as soon as completed. The entire staff for this hospital will have to be recruited from outside the island.

The hospitals at Eleele and Waimea will have to be moved. The arrangements for this are still under discussion with the Army.

At Makaweli it is planned to construct an additional hospital, using surrounding camp buildings for ward space.

Kauai has 8 first-aid units, situated at Kilauea, Kapaa, Lihue, Koloa, Eleele, Makaweli, Waimea and Kekaha, with 4 sub-stations at Hanalei, Puhi, Kalaheo and Mana. These are fixed stations but organized to be readily mobile. They have make-shift ambulances, and all the force is volunteer, including ambulance drivers, litter bearers and first-aiders. There is a central administration office for the first-aid activities with a supply clerk, assistant clerk-stenographer and typist. There are only two nurses available for service for the entire first-aid set-up throughout the island.

### Island of Oahu

Since the last report our activities have consisted principally of conducting the immunization campaign. The assistance rendered the Board of Health physicians and the first-aid station doctors and personnel by the medical officers and nurses of the Army was indispensable, and it is pleasant to record that either these people enjoyed the experience or they are consummate actors. At any rate their help was given not only cheerfully but enthusiastically.

In April, 39 Red Cross nurses arrived from the mainland under the supervision of Miss Margaret Tracy, and they immediately took up their duties in the O.C.D. hospitals, Sacred Hearts and Wahiawa. The writer never realized before how important the assistance of nurses could be in what might almost be called the construction of hospitals. These women did work that should have been done by scrub women and orderlies and did it as if they had been doing it all their lives. The preparation of the hospitals for the reception of patients was tremendously speeded up by their help. For short periods of time several of these

nurses were loaned to civilian hospitals in Honolulu to supply deficiencies in their nursing staffs.

Sacred Hearts Hospital began to accept patients on April 22nd and Wahiawa Hospital was ready to receive them on May 4th. Their capacity is still limited largely by lack of special facilities, orderlies and other help. A volunteer medical staff assigned to Sacred Hearts has been holding meetings in the hospital, studying the deficiencies and arrangements with a view to being able to go into action quickly when the need arises.

Owing to the crowded condition of Honolulu hospitals and the obvious need for a system of traffic control for these hospitals, the Military Governor issued an order setting up a military controller who will fix the capacity of all hospitals and in effect bring about the pooling of military and civilian hospital facilities to take care of any sudden need for their expansion.

GENERAL ORDER 101, SECTION VIII.  
ESTABLISHMENT OF CIVILIAN HOSPITAL  
CONTROL OFFICE.

1. A recent survey of the patient capacity of civilian hospitals on the Island of Oahu indicates that some hospitals are filled to capacity, that others are crowded, while still others have available facilities to accommodate additional patients. To alleviate this condition, it is necessary to provide a suitable regulation of the receiving of patients.

2. Major C. C. Gill, Medical Corps, is hereby appointed Civilian Hospital Control Officer, with authority to regulate and control the admission of patients to all civilian hospitals on the Island of Oahu. All persons and hospitals will comply with the regulations and orders of the Civilian Hospital Control Officer in this connection.

3. The Civilian Hospital Control Officer will immediately survey the patient capacity of all civilian hospitals on the Island of Oahu and will maintain a Civilian Hospital Control Office on a twenty-four hour basis for the purpose of expediting and assisting hospitals and doctors in securing adequate hospital patient facilities.

4. Until further notice, the Civilian Hospital Control Office will be located at Farrington High School, phone number 8564, or phone number 8531, Locals 490, 363, or 676.

By order of the Military Governor:

(Signed) THOMAS H. GREEN,  
Colonel, J.A.G.D., Executive.

April 30, 1942

This system is not yet in force, but the details will be announced shortly. There was considerable opposition on the part of the medical profession to the idea of military compulsion, but it is believed that when it is clearly understood the system will be a help to them rather than a hindrance. At any rate a system of this sort is absolutely necessary during periods of enemy activity.

The plan will work something like this. Whenever a hospital has reached its predetermined capacity for safe operation no more patients will be admitted except for actual emergencies. Physicians applying for permission to admit patients will be told that the institution is full; they may then either contact another hospital to discover whether or not they have empty beds or they may call the office of the controller who will at all times be prepared to advise a physician which hospital has beds available. This control applies also to the military hospitals, but in these latter the treatment of patients will be the responsibility of the officers of the medical corps of the Army. Civilian physicians will practice in them only as guests. The department surgeon has assured us that every courtesy will be shown to civilian physicians who admit patients to military hospitals. The heads of the various hospitals in the city which have closed staffs have been asked to permit any physician in good standing to treat emergency patients in their hospitals "for the duration", and they have all consented.

The program of recruitment of mainland nurses for Honolulu's civilian hospitals, which is in the hands of Mrs. Akana, is progressing satisfactorily. Pending the arrival of the 31 nurses recruited on the mainland, who have been waiting there for transportation for the past six weeks, the department surgeon has detailed Army nurses to temporary duty in civilian hospitals to lighten the strain on reduced and overburdened staffs. A program of training nurses' aides is also well under way, some of them having already gone to duty in the hospitals.

The medical, surgical and hospital supplies for the Territory have begun to arrive from the mainland and are being distributed as quickly as possible.



## Island of Maui

Like many other organizations, the Maui County Medical Society has been endeavoring to adapt itself to the war situation.

The first move in this direction was the election of the Chairman of the Committee of Health and Sanitation under the Civilian Defense Corps to the presidency of the Society. The Governing Committee of the Medical Society, consisting of the present officers and the last three presidents, was designated as the Civilian Defense Committee. By such an arrangement the Medical Society remained intact with its activities in complete unity with the Civilian Medical Defense program.

Two complete medical organizations have been established: the Non-Emergency Civilian Medical Defense and the Emergency Civilian Medical Defense, thus providing for all administration during an emergency to be under the direction of lay civilians, and allowing each physician to devote all his energy and attention to medical matters.

The outside islands are not as fortunate as Oahu from the standpoint of specialists in various fields of medicine. Nevertheless an attempt has been made to utilize as far as possible all the special medical talents available. Specific assignments for the supervision of the various specialties have been made. These will be included in the list of Maui Special Committees, appearing elsewhere in the JOURNAL.

Plans for an emergency medical set-up on Maui have been based upon the principle that casualties will be collected at the combat zones and, by means of connecting sub-stations, be transported to base hospitals considered safe either by virtue of their distance from the combat area or because they are materially protected. Combat areas cannot be outlined until an attack occurs, but various areas have been designated as probable combat zones. Location of vital installations, distribution of population and other factors have guided us in anticipating these probable zones.

Maui is geographically divided into three main districts by Mt. Haleakala and by the West Maui mountains. It is anticipated that these districts

may need to act independently but an endeavor has been made to arrange for united action if this proves to be feasible. Various sections of our base hospitals have been set aside for special types of casualties. One of these units will be allocated to the care of burn cases, one for orthopedic cases, one for gas casualties, and so on.

Most of the hospitals located in areas designated as possible combat zones have already been evacuated save for out-patient dispensary needs. What facilities remain are being protected against bombs, shells, fires or other enemy action. First-aid stations, emergency hospital stations and base hospitals have been tied together by a network of ambulance service with accompanying personnel.

The Maui Medical Society is proud to state that, save for two or three necessary full-time employees in the administrative department of the Office of the Director of Civilian Defense, our organization is made up completely of volunteers. We have a trained organization of over 1,000 persons. This number does not include members of other defense units which have been correlated under various circumstances to augment our organization.

While our organization has been divided geographically into three different and distinct medical defense units, an endeavor has been made to render assistance to Molokai and Lanai. We have already sent to Molokai a representative who is fully informed of our entire program, as a goodwill gesture, and—it is hoped—as the bearer of practical help.

Physicians of Maui County have not had the opportunity to experience action as have the physicians on the Island of Oahu. We hope that if future circumstances demand it, we will be prepared to handle the situation as commendably as it was handled by the Honolulu County Medical Society on December 7th.

We are gradually merging our civilian activities and facilities into the Army, Navy and air program, hoping that in the very near future a combined and unified organization will be available to military and civilian casualties alike.

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# COUNTY SOCIETY REPORTS

## NEWLY ELECTED OFFICERS FOR THE YEAR 1942-1943

	Hawaii County	Honolulu County	Maui County	Kauai County
<i>President</i>	H. M. PATTERSON	FRED K. LAM	R. J. McARTHUR	A. WEBSTER BOYDEN
<i>Vice-President</i>	R. EKLUND	H. H. WALKER	H. H. SEILER	S. R. WALLIS
<i>Secretary</i>	E. TOMPKINS	N. M. BENYAS F. J. HALFORD	WM. OSMERS	I. UMAKI
<i>Treasurer</i>	WALTER LOO	ROGERS LEE HILL	WM. OSMERS	I. UMAKI
<i>Delegates</i>	T. KEAY E. TOMPKINS	N. M. BENYAS O. LEE SCHATTENBURG FRED K. LAM H. T. ROTHWELL J. E. STRODE H. C. GOTSHALK R. O. BROWN G. C. MILNOR	(TO BE APPOINTED LATER)	D. R. CHISHOLM
<i>Alternate Delegates</i>	WM. BERGIN H. E. CRAWFORD	EDMUND ING A. G. SCHNACK MAURICE GORDON ARTHUR DAVIS R. M. OGAWA H. M. JOHNSON		MARVIN BRENNECKE

### HAWAII COUNTY MEDICAL SOCIETY

The 204th meeting of the Society was called to order on April 4th, 1942 at 2:00 p.m. at the Naniloa Hotel. Twenty-six members were present.

Dr. Yamanoha's application for membership was returned by the Censors and will be presented at the next meeting for a vote.

A communication from the Territorial Association was read regarding the Accident Life Insurance Plan, and a letter re the plantation health plan. The Society went on record as being against such a plantation health plan at this time due to present emergency conditions.

The Society went on record as favoring an annual meeting of the Territorial Association feeling that it would be of extreme value especially in these times as a great deal of information can be exchanged by men from the various islands and many new ideas gained by members of our Society.

The Society agreed to adopt a fee schedule of \$1.00 per injection for typhoid and small pox immunization.

In discussing the letter received from Mr. McMorrow of the Board of Health re the five day treatment of syphilis, Dr. Phillips felt that compulsory hospitalization of infected venereal patients was not always advisable and at times led to failure to report the disease to the physician. He stated that the authorities were willing to modify this section of the rules and suggested that sulfa drugs be sold only on a physician's prescription to check self medication. It was pointed out in discussion that compulsory isolation was required only where treatment was delinquent or there was suspicion of spreading the disease. Infectious cases in outlying districts should be restricted to their districts until considered non-infectious by the attending physician. It was voted to request an order by the Military Governor to prohibit the sale of sulfa drugs except on prescription.

The election of officers took place with the following results:

<i>President</i> .....	DR. H. M. PATTERSON
<i>Vice-President</i> .....	DR. R. EKLUND
<i>Secretary</i> .....	DR. E. TOMPKINS
<i>Treasurer</i> .....	DR. WALTER LOO
<i>Delegates</i> .....	DR. T. KEAY
	DR. E. TOMPKINS
<i>Alternate Delegates</i> .....	DR. WM. BERGIN
	DR. H. E. CRAWFORD
<i>Censor for 3 years</i> .....	DR. RICHARD ARIMIZU

Dr. Keay reported that the Civilian Defense Committee was no longer active and was disbanding, and that the minutes and materials in its possession will be turned over to the secretary for safekeeping.

A short discussion took place regarding the current epidemic of jaundice and some of the impending dangers were discussed by Dr. Patterson. It was voted that Dr. Haralson be advised that the society is very concerned about the epidemic and that it stands ready to take whatever steps he feels are advisable in combatting the future dangers.

This meeting was well attended and enjoyed by the majority of our members after partaking of a luncheon given by the retiring president, Dr. Bergin.

EDMUND TOMPKINS, M.D., reporting.

The 205th meeting of the Hawaii County Medical Society was called to order on May 3rd, 1942, at 2:00 P.M. at the Naniloa Hotel. There were 15 members present; Dr. Steele Stewart, Dr. Richard Lee and several military physicians were guests.

Scientific papers were presented: Weil's Disease with the Differential Diagnosis was presented by Dr. Eklund; Dr. Keay presented the laboratory and clinical findings of the disease; Dr. Patterson discussed the clinical findings and his experiences in a series of ten cases. Considerable discussion on Weil's Disease and associated problems was presented by members and the military personnel.

Dr. Phillips reported that an order regarding the sale of sulf. drugs was being worked on and that the Army had agreed that cases of venereal disease need not be hospitalized if the

physician could control the case and give it adequate treatment, but the consent of Army officials must be obtained to forestall hospitalization.

Dr. Orenstein reported that the mass immunization date had been changed to June 8th; that stations are being set up and the funds set up for the payment of physicians at the rate of \$5.00 per hour. Considerable discussion was had in regard to the fee schedule for mass immunization if done by individual industries and concerns. The consensus was that we abide by the previous agreement of \$1.00 per injection and that no cut-rate prices be given. No definite action was taken as the Society seemed to be in accord.

Amendments to the by-laws as circulated were adopted as follows: Amend Chapter II, Section 2, to read: "For the duration of the present war emergency the President, after consulting with the Vice-President and Secretary, shall be empowered to call a meeting of the Society at any time it is deemed necessary and such a meeting shall be considered a regular meeting, and furthermore, such a meeting shall be called upon the request of any five members." Amend Chapter III, Section 1, to read: "The Officers of the Society shall be elected at the March meeting in each year . . ."

Announcement was made of the annual meeting of the Territorial Association to be held June 6th and 7th, 1942.

The election to membership of Dr. Yamano-ha was postponed until the next meeting due to the small membership present.

EDMUND TOMPKINS, M.D., reporting.

## MAUI COUNTY MEDICAL SOCIETY

The following committees were appointed to serve for the year 1942-1943:

### Medical Defense Committee:

R. J. McARTHUR, *Chairman*  
H. H. SEILER  
WILLIAM OSMERS  
GORDON H. LIGHTNER  
WILLIAM T. DUNN  
K. P. JONES  
ROBERT KNIFFEN

## Committee on Sanitation:

C. J. KUSUNOKI, *Chairman*  
 GEORGE ZANE  
 EDWARD MAU  
 MISS ALMA WHITMAN

## Special Committees:

*Maui Plasma Bank*—GORDON H. LIGHTNER  
*Transfusion*—WILLIAM PATTERSON  
*Orthopedic*—WILLIAM T. DUNN  
*Head and Spinal Cord Injuries*—E. H. ANDERSON  
*Burns*—H. H. SEILER  
*Gas*—C. J. KUSUNOKI

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**HONOLULU COUNTY MEDICAL SOCIETY**

The Annual Meeting of the Honolulu County Medical Society was held on Sunday, April 5, at 1 p.m. in the Mabel Smyth Building. 58 members were present. Reports from officers and committees were heard.

In addition to the officers listed at the head of this section of the JOURNAL, the following were elected by the membership:

*Board of Governors:* A. G. HODGINS  
 A. V. MOLYNEUX  
 S. E. DOOLITTLE

*Alternate,*

*Board of Governors:* RICHARD K. C. LEE  
 WILLIAM WINTER  
 JESSE SMITH

*Board of Censors:* GARDNER BLACK

*Committee on Forms of Medical Practice:*  
 L. A. R. GASPAR

*Hawaii Medical Service Association:*

A. V. MOLYNEUX  
 E. W. MITCHELL  
 L. A. R. GASPAR  
 RICHARD SIA

The membership was asked whether it was in favor of an annual meeting of the Territorial Association. It was generally felt that the business session and the election of officers were compulsory. Dr. McArthur of Maui, who was present, said his Society favored a territorial meeting, and while many members will not be able to attend, the councillors and delegates will probably be present.

Dr. Haralson called attention to the impending epidemic of jaundice, stating that on the out-

side islands, particularly in military areas, a considerable number of cases had appeared which are identified as "acute hepatitis". He cautioned the doctors to be on the lookout for jaundice, to isolate cases at home or send them to hospitals, and to advise the Board of Health if any considerable number appear.

Because of their general interest, the reports of the Board of Management of the Mabel Smyth Building, the Workmen's Compensation Committee, the Post Graduate Committee, and the Preparedness Committee are here quoted:

## REPORT OF BOARD OF MANAGEMENT

## MABEL SMYTH BUILDING

LYLE G. PHILLIPS, M.D., chairman

As of December 1, 1941, the assets of the building totaled \$102,840.11, this including cash on hand of \$2,089.12; the building itself \$83,880.03; furniture and fixtures \$6,939.64; air conditioning system and sundry equipment totaling \$6,918.99; with contributions to be solicited in order fully to meet further construction costs, \$3,012.33.

Outstanding against these assets is a note to the Margaret Jones Memorial, \$4,990.00. Revenue from the building during the past year totalled \$3,550.09, of which \$2,346.67 was from regular rentals; \$672.50 from rental of the auditorium, and \$458.42 receipts from teas, luncheons etc. Expenditures total \$3,438.64. This left an operating profit of \$111.45.

Depreciation on building equipment, furniture and fixtures was estimated at \$3,865.86.

With the onset of the war the possibilities of increasing revenue from rentals of the auditorium disappeared; also there was a reduction in the number of teas and luncheons previously held. As a result, the regular expenses of the building have, for the past three months, slightly exceeded the revenue; however, sufficient voluntary contributions have been made to cover this loss for the time being.

The building's first year has definitely demonstrated its value and usefulness to the community. It has become a center for activities of the medical and nursing professions which has filled a long felt want.

## WORKMEN'S COMPENSATION

## COMMITTEE REPORT

F. J. PINKERTON, M.D., chairman

About the first of July the Board of Governors asked this committee to review the present industrial fee schedule in view of opinions expressed that the schedule was out of line with the present industrial situation. At that time the regular committee of three members, namely, Drs. Pinkerton, Strode, Fronk, was enlarged to include Drs. West, Black, Batten and Duryea. To help it in reaching a decision, the committee sent out a questionnaire asking each member of the Society to answer specific questions: namely, whether they were satisfied with the present industrial accident fee schedule and wished



it to continue without major revision, or whether a sufficient number of items needed revision to warrant opening up the issue of revising the schedule with the insurance companies and industrial firms, and, members were asked to suggest individual items in the fee schedule which they believed needed revision.

Some 25 blanks with suggestions for change were submitted for the committee's consideration when it met on August 15th. Since by negative report and lack of report it appeared that the society was overwhelmingly in favor of no revision, the Committee decided not to make any revisions unless the insurance companies have raised their premiums to industrial firms, in which case a blanket increase throughout the schedule seems indicated.

At that time I was authorized to take up with the Hawaiian Workmen's Compensation Commission, the method by which they arrive at premiums charged. The contractor makes application to the Hawaiian Workmen's Compensation Commission either on a job basis or on an annual payroll of so many individuals at a salary of so much, and the fees range from 10 cents per \$100 on the less hazardous contracts to between \$6 and \$7 per \$100 on the very hazardous contracts. The premiums charged a given company would be quite different than those charged to another company, based on experience and risks. Under the national scheme an insurance company is limited in the amount allowed for overhead expense. In this way the medical man, the company and the man insured gets insurance at a cost controlled by a national board.

I speak of this at length because we are faced with an increased amount of governmental work in the Territory. Practically all private contracts are now permitted to function solely with the consent of the government; while the government may not have control over the carpenter building our home it does have control over the availability of materials, the wage schedule, etc. So that indirectly the Government is in control of practically all contract work in the Territory.

The vast majority of the work in the Territory is being done by the government. It is all done on a cost plus basis with no definite contract so there is no basis for a definite insurance premium. It is recommended by the Compensation Association that a well informed committee of the medical society meet with the Commission to bring us up to date on the status of compensation insurance under these new conditions. I believe it would be wise to appoint a small committee of doctors familiar with the subject who would report back whether the fee schedule should be revised basically, or if individual controversial items should be changed. Certain items are badly out of line, some are so low that one is tempted to dishonesty to make up for losses if one has too many of certain cases. On the other hand, from the insurance man's point of view there are seven or eight items which they consider inordinately high.

At the beginning of this year the Board of Governors instructed Dr. Gaspar, president, to appoint a special committee to investigate medical economic matters arising particularly as a result of the emergency situation following December 7. Although the committee was to concern itself with

general economic matters, its work boiled itself down to workmen's compensation consideration; which report of that Special Committee, made recently to the Board of Governors, is contained in the March issue of the HAWAII MEDICAL JOURNAL on page 279.

#### REPORT OF THE PREPAREDNESS COMMITTEE

H. L. ARNOLD, M.D., chairman

The present Preparedness Committee was elected by the Medical Society, as you will all remember, at a special meeting held in April of 1941. Up to that time Dr. Fronk and Dr. Faus had been vainly attempting to interest the profession in what was then alluded to as "preparedness for disaster." The frank statement of Colonel Edgar King at that meeting, calling attention to the serious need for this progress, furnished the impetus which made possible the development of the program. The various members of the Committee were assigned to duty at its first meeting on April 13th. They were: Dr. Arnold, Chairman and Executive; Dr. Judd and Dr. Strode in charge of Surgical Teams for Hospitals; Dr. Larsen in charge of Hospital Expansion and Evacuation; Dr. Pinkerton in charge of Liaison with the American Red Cross, Chamber of Commerce and other agencies; Dr. Withington in charge of Plans for Evacuation of Casualties; and Dr. Faus in charge of Plans and Training. Dr. Withington was soon compelled to resign from the Committee because of his entrance into the Naval Medical Service and his place was taken by Dr. Benyas, who was appointed by the Board of Governors.

The activities of the Committee have been far too extensive and complicated to permit even a synopsis of them, but the minutes of all the meetings are on file in the office of the Medical Society and may be consulted at any time by any member of the Society. About 4,500 persons were trained in first aid and in the other duties connected with the operation of an aid station. Twenty aid stations were set up over the island in areas designated by the Department Surgeon and these have continued to date. It should be noted that each aid station serves approximately 15,000 persons on the average. More than 200 trucks suitable for conversion to ambulances were volunteered by patriotic firms in the city and their conversion had been effected and the ambulances supplied at the onset of war. The story of what they have done is familiar to you all and, if not, may be read in the past numbers of the HAWAII MEDICAL JOURNAL.

Supplies and funds for the equipment and the operation of these stations were furnished up to the beginning of the war by various agencies, principally the American Red Cross, the Chamber of Commerce and the City and County of Honolulu. All expenses since the beginning of the war have been borne by the Office of Civilian Defense, except for the donations which have been made from time to time by the Red Cross and the Army, and these have been extensive. The Red Cross, particularly, is still furnishing enormous quantities of dressings and other supplies.

About two weeks after the beginning of the war it became apparent that some means of livelihood would

have to be provided for a large proportion of the workers in the aid stations because while they could continue to serve on a spasmodic basis from time to time, as volunteers, they could not serve full-time every day and still support themselves. Accordingly, at a conference with Colonel King of the Army, Mr. Beasley of the Department of Social Security, Dr. Haralson of the Board of Health, and Mr. Doty, the then Director of Civilian Defense for the Territory, it was decided to set up a scale of pay based upon the fundamental proposition that about \$125.00 a month was a minimum which could support an individual completely. Nurses were paid the scale of pay which the Army provides for civilian employed nurses. Doctors in aid stations were given the pay of First Lieutenants, and Supervisors and higher positions with pay corresponding to higher ranks in the Medical Corps of the Army. These salaries, of course, were all base pay and contain no increments for longevity. The skeleton full-time staff for twenty-four hour coverage of each aid station is sixteen. Thirty full-time ambulances are authorized and are in the process of acquisition, with sixty drivers, one for day, and one for night, and ten motorcycle messengers.

The changes in organization have been many and interesting. Immediately before the City and County began its payment to the maintenance of the Emergency Medical and Ambulance Service, the Chairman of this Committee was appointed as a member of the Major Disaster Council. Up to that time, the medical profession had been represented on that Council by Dr. Mossman, City and County physician and Dr. Haralson, the Territorial Commissioner of Health. Late in December, the activities of this organization were taken over by the Office of Civilian Defense. In January, Dr. Haralson was appointed by the Governor as Territorial Administrator of Emergency Medical and Related Services, and your Chairman was made Executive Officer for the Services for the Island of Oahu. From the standpoint of administration, all emergency medical activities under the Office of Civilian Defense on this Island are now under the one office. It has been necessary for the Chairman to render full time service since the beginning of war, although he hopes that in the near future it may be possible for him to serve only as a volunteer and to devote a portion of his time to his own business.

The Emergency Hospitalization Program has been put in charge of Dr. Linson of the Public Health Service. A 300 bed hospital is three-fourths completed at Wahiawa, a 450 bed hospital at Sacred Hearts Academy in Nuuanu, and a 100 bed hospital at the Manoa Japanese Language School. This latter hospital will not be operated until and unless the military situation makes it necessary. It is planned to complete it, equip it, and lock it up and hold it for an emergency. The other hospitals will be operated on a small scale as soon as they are sufficiently completed. Any physician on the staff of Queen's Hospital may admit patients to Sacred Hearts as soon as it is opened and any physician not on that staff is a liberty to apply for permission to take patients there if he so desires. The same policy will be followed at the hospital at Wahiawa.

Your Chairman has continued to consult the members of the Preparedness Committee on every occasion when he felt that a matter of policy was involved, and this will be continued as long as the present personnel remains. The exact status of this Committee, as far as the Medical Society is concerned, remains somewhat obscure. It was elected by the Society, which is, in itself, a new departure, and no term was fixed for the service of the members. The Society should decide at this meeting whether or not they desire to continue these men in office and if not, steps should be taken to replace them with others.

The cooperation of the Medical Society has been practically 100 per cent perfect. I wish to express my deep gratitude, in the name of the Committee, to those members of the profession who have served so faithfully and efficiently in the manifold duties which have been asked of them. No Honolulu doctor has ever refused, except for perfectly valid reasons, to do anything that he has been asked to do by this Committee or by its Chairman. In conversation with the Department Surgeon the other day, he expressed to me very much the same feeling, that the cooperation which he had received from the local medical profession was, as he put it, simply splendid. We thank you again.

The Society voted unanimously that the present Preparedness Committee be continued for the duration and gave it a vote of confidence.

N. M. BENYAS, M.D. reporting.





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# NOTES AND NEWS

A bulletin devoted to the vitamin content of food, especially Hawaiian grown foods, is being planned for publication by the Hawaii Agricultural Experiment Station of the University of Hawaii. Progress Notes #36 lists some 55 Hawaiian grown fruits and vegetables with a content of vitamin A, Vitamin B, and ascorbic acid (Vitamin C) content. Copies of these notes are available upon request—address Carey D. Miller, Nutritionist.

The maximum prices established by the Price Administrator under the Emergency Price Control Act of 1942 apparently do not apply to physicians, according to Section 10-C "Services excepted".

General Order #105, May 16, 1942, prohibits the use or operation of any electrical diathermy type machine after Sunday, May 17.

We are informed that regulations are being drawn up under which permission will be granted to operate these machines. In the meantime application blanks for such permission are available in the office of the Medical Society.

Reports of Hawaii medical activities during the blitz are receiving wide recognition on the mainland. Almost every mail brings several comments either on the reports made in the January issue of the Journal or resolutions passed by county societies as a result of Dr. Moorhead's reports of local activities. The American Medical Association News digested Dr. O. L. Schattenburg's article on obstetrics; Western Public Health cites Dr. E. E. McNiel's article on studies made on the reaction to war and blackout and their effect on children; the article "War Came to Hawaii" appearing in our January issue is being reprinted by the Indiana State Medical Journal, and the section of this same journal dealing with the first aid and ambulance services under action on December 7, is being reprinted in the San Diego County Society bulletin.

Work has begun on the new building on Queen's Hospital grounds to house the Blood Bank.

## NEW MEMBERS

DR. ARTHUR W. DURYEA announced the opening of offices in the Young Hotel Building recently.

DR. C. ALVIN DOUGAN has been honored with membership in the American Trudeau Society.

DR. SAMUEL D. ALLISON, Venereal Disease Control Officer for the Board of Health, recently went to the Big Island to discuss with the local administrative officers and physicians the frequency of venereal disease cases and methods of control.

DR. MARIE FAUS spent May 1-18 on the island of Hawaii giving a course in home protection under the auspices of the Adult Education Department of the University of Hawaii. Her classes were attended daily by at least 100 women.

CORRECTION: The letter to the editor appearing in the March issue under Notes and News was inadvertently left unsigned. The author was DR. R. B. CLOWARD.

DR. SCHATTENBURG's paper telling how the obstetric program operated during Honolulu bombing on December 7, which appeared in the Journal of the American Medical Association, April 4, has received additional publicity through the circulation of the American Medical Association News which was released for publication and reprint throughout the United States.

DR. RICHARD K. C. LEE and DR. STEELE F. STEWART recently held a series of crippled children's clinics on the island of Hawaii.

DR. LEO BERNSTEIN, U. S. Public Health Service reserve, has taken up his duties as health officer for the county of Kauai.

DR. N. M. BENYAS has been appointed by Governor Poindexter to the Territorial Psychiatric Commission to succeed Dr. R. B. Cloward.

DR. EDWIN T. KAM has been appointed government physician for the Kaneohe-Kaaawa district on the windward side of Oahu. DR. CLARENCE CHINN is now government physician for the Kailua-Lanikai-Waimanalo district.

DR. T. L. TAYLOR has resigned as superintendent of Waimano Home. DR. E. T. CHING has been made Medical Director for that institution.

A report of research and investigation on rat borne diseases—typhus fever, infectious jaundice, and human trichinosis—has been completed by Dr. J. E. ALICATA and is available at the County Society Library.

Dr. R. J. McARTHUR visited Honolulu in April and we were glad to have him at our Thursday morning meeting.

Dr. and Mrs. WILLIAM SHANAHAN are being congratulated on the arrival of their daughter, Sue Ellen.

The MARTIN LICHTER's added a third child to their family on March 22—a daughter, Linda M.

Dr. KUSUNOKI has recovered lately from an attack of kidney stones. He made a trip recently to Honolulu to observe the operation of the immunization program on Oahu preparatory to such a program being undertaken on the Island of Maui.

Dr. RICHARD Y. SAKIMOTO was married to Miss Eleanor Matsumoto in April.

There will be three in the family of Dr. JOHN SANDERS some time in July.

The many friends of Dr. F. A. ST. SURE, SR. will be glad to know that he has returned from Lane Hospital, much improved from pernicious anemia, and is in his office every day.

There is a new arrival at Honolua Plantation — Dr. T. P. CHOU, formerly the head of the E.E.N.T. department in the Red Cross Hospital at Shanghai. Dr. CHOU was educated in England and at Yale.

35 registered nurses have arrived from the mainland on the last convoy through the efforts of Mrs. Akana and have been assigned to hospitals on all the islands. The need for more nurses is still overwhelmingly great.

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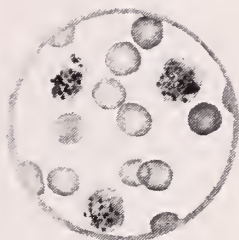
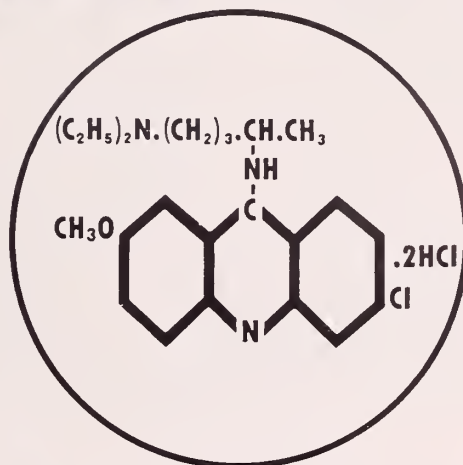
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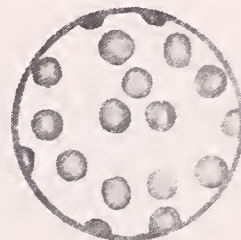
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# LIBRARY NOTES

## OLD JOURNALS

Every once in a while someone tells us he's cleaned out his office and has thrown away his old journals. *Please don't throw any journals away* without giving the Library a chance to see if they are of value.

Many of our journal files still have gaps in them. There is no money available to purchase missing numbers, and although we have made steady progress in securing these by exchange with mainland libraries, this is a slow process and will take years.

Even if your old journals are not needed for our files, we still can put them to good use, especially now. The Army and Navy doctors in isolated stations throughout the islands are eager for them.

So please, no matter what type of medical journal, old or new, that you are about to discard, give us a chance at them. It may be just what we need most. Sometimes a very recent journal walks away from the racks.

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## REPRINT AND PAMPHLET FILE

Now that the work of reclassifying and preserving the books has been completed, attention is being given to the thousands of reprints accumulated over the years. These are being evaluated, classified and indexed. To build up a valuable reprint file would be a mountainous job, but we do believe there should be on file in the library as many reprints as possible of articles written locally or about local observations. Contributions of such material would be welcome, and we can now give assurance that it will be well preserved and made useful and available.

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## RECENT ACCESSIONS.

*Callander*—Surgical Anatomy  
*Rasmussen*—Principal Nervous Pathways  
*Hertzler*—Technic of Local Anesthesia

*American Heart Assn.*—Nomenclature and Criteria for Diagnosis of Diseases of the Heart.

*Harrison*—Failure of the Circulation

*Andrews*—Diseases of the Skin

*Sutton*—Diseases of the Skin

*Norris*—Diseases of the Chest and the Principles of Physical Diagnosis

*Newberg & Mackinnon*—Practice of Dietetics

*Scrivringhaus*—Endocrine Therapy in General Practice

*AMA*—Primer on Fractures

*Key and Conwell*—Management of Fractures, Dislocations and Sprains

*Watson-Jones*—Fractures and Other Bone and Joint Injuries.

*Castiglioni*—A History of Medicine

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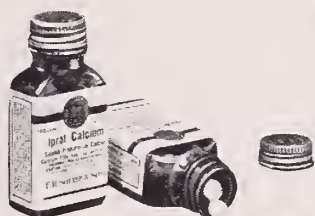
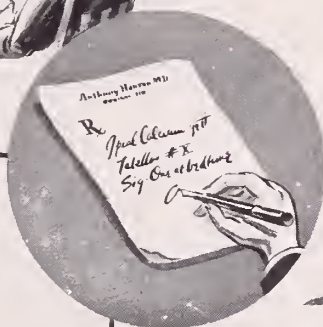
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## ISLAND OF KAUAI ISSUE

RANDOM NOTES OF A SANATORIUM PHYSICIAN

D. R. CHISHOLM, M. D.

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MASSIVE DOSE ARSENOTHERAPY OF  
EARLY SYPHILIS

SAM R. WALLIS, M. D.

•

MENIERE'S DISEASE

TADAO HATA, M. D.

•

CLINICAL USES OF THE SULFONAMIDES

S. E. DOOLITTLE, M. D.

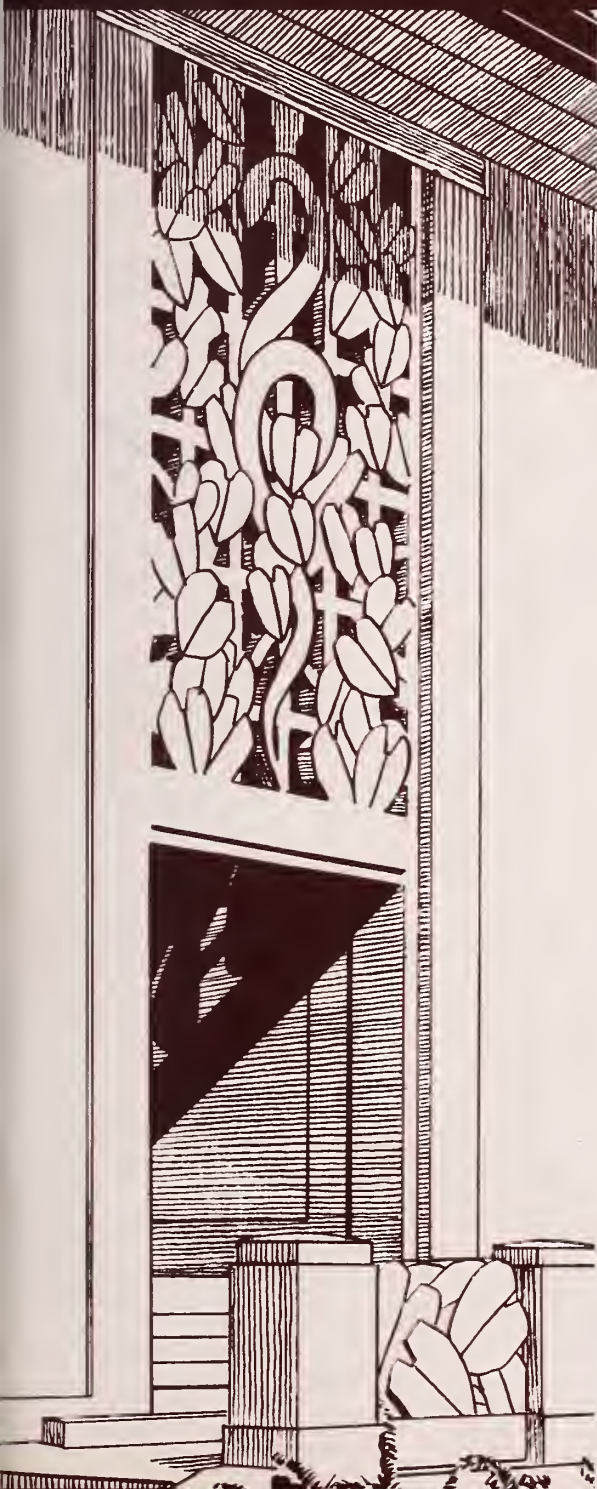
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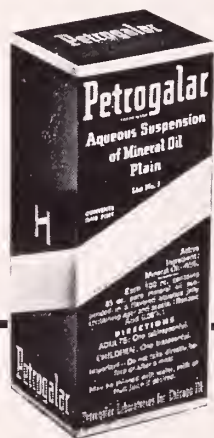
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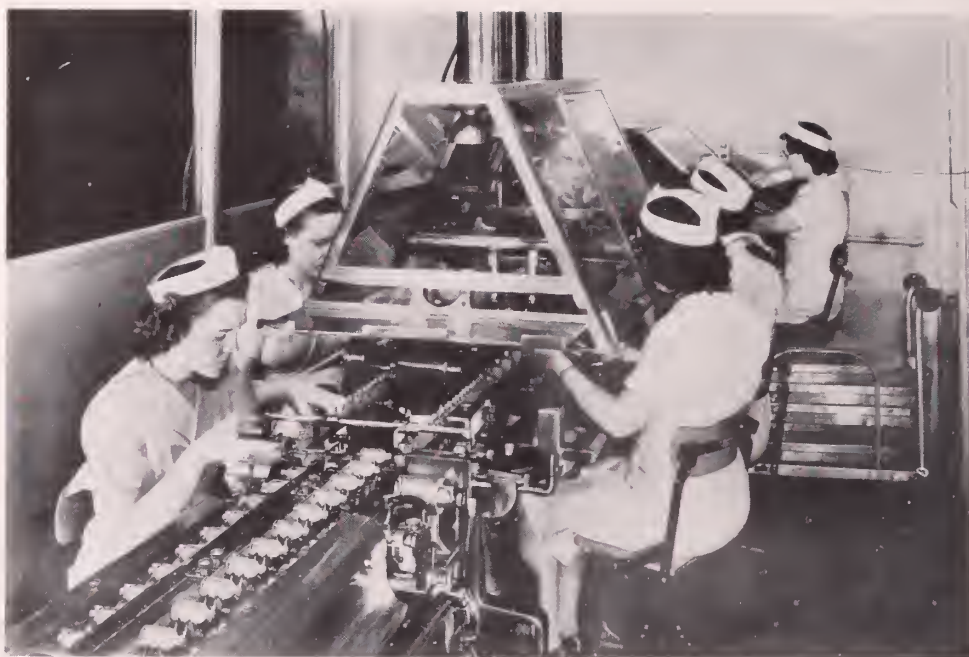
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# Random Notes of a Sanatorium Physician

D. R. CHISHOLM, M.D.

Kealia, Kauai

Statistics reveal that in the United States tuberculosis kills twice as many people annually as are killed by automobile accidents. About one-third of all deaths between the ages of fifteen and forty-five are due to tuberculosis. Tuberculosis is a common cause of death even in the aged. Notwithstanding all the attempts made within modern times to control tuberculosis, about 55 per cent of cases have advanced disease when diagnosed. Only about 16 per cent have lesions of a minimal extent when first discovered. The tragedy of this is that early tuberculosis is one of the most curable of diseases. Advanced tuberculosis is difficult to cure, and, when "cured," often leaves sequelae which cripple the patient.

The private physician can do much to change the unfavorable ratio of minimal to advanced cases of tuberculosis. This should not be taken to infer that the private physician is largely responsible for the existing ratio. In the great majority of cases the fault lies with the patient and his circumstances. Most patients with advanced disease do not consult a physician until they do have advanced disease. This, however, should serve only to make the physician more alert to tuberculosis. He should make it a rule that no physical examination is complete without an x-ray of the chest.

The significance of the fact that the patient himself is usually responsible for advanced disease is this: that regardless of the worthiness of the ideal of educating people to an awareness of tuberculosis, the plain truth of the matter is that the class of people who usually have tuberculosis is not very susceptible to education. In general, there are two reasons for this: First, there is the mental attitude which will permit advanced disease to develop. Such is not readily dissipated by persuasion. Secondly, there is the cold fact that, in this class, the necessity of continuously maintaining one's immediate economic circumstances without interruption—loss of a day's pay—makes attention to work more important than attention to health. As one pitiable indigent recently remarked to the writer, "I am too important for taking care of my garden than for taking care of my lungs." The obvious inference is that if the above mentioned ratio is to be reversed, continuously oper-

ating, aggressive, case-finding efforts, backed by public health authority, will alone turn the trick.

## POSITIVE SPUTUM AND NEGATIVE X-RAY

A patient may have a sputum positive for acid-fast organisms and yet show no x-ray evidence of pulmonary tuberculosis. If the organisms are true tubercle bacilli, as they nearly always are, the patient has tuberculosis. The tubercle bacillus does not exist in the human body except as a manifestation of disease. Rarely, the combination of negative x-ray and positive sputum is due to a tuberculous tracheobronchitis. Usually, however, it is due to one of two causes, viz: ulceration of caseous hilar nodes into a bronchus, or the presence of a cavity, obscured by the heart shadow, in the subapical portion of the lower lobe.

When one considers the frequency with which caseous glands in the neck lead to ulceration through the skin, rupture of hilar glands into immediately adjacent bronchi should not be considered a curiosity. Although the difficulty of confirming or excluding such a diagnosis clinically is great, the fact that caseous hilar glands are so much more common than caseous cervical glands would lead one to believe that communication between the former and the bronchi is more frequent than is suspected. The development of such a sinus tract may mark the onset of an obstinate cough and persistent "bronchitis" in children.

It is sometimes startling how frankly an x-ray taken in the oblique position, will reveal the cause of a positive sputum to be a lone cavity lurking behind the heart shadow in the postero-anterior film.

Acid-fast organisms in the sputum are to be considered tubercle bacilli until proved otherwise. This holds whether the organisms are found on direct smear, by concentrates, or by culture. Occasionally, however, the organism is a non-pathogenic acid-fast. If the x-ray and the bronchoscope fail to demonstrate a tuberculous lesion, and acid-fast organisms can be repeatedly cultured from the sputum, one assumes a grave responsibility in excluding tuberculosis without first determining that the organism is non-pathogenic to the guinea

pig. The organisms may be coming from a tiny sinus tract between a gland and a bronchus.

#### PERIBRONCHIAL TUBERCULOSIS

The arborescent shadows which are visible in the lung fields by x-ray, and which are normally most marked in the lower part of the lung, are predominantly produced by the pulmonary arteries and veins. Contrary to a common conception, these normal shadows are not produced by the bronchi. The enlargement and increased density of these shadows in left ventricular failure indicates their vascular nature.

The parenchymal lymphatics of the lungs closely follow the course of the vascular markings. Accentuation of the vascular markings of the lungs is brought about by any process which leads to perilymphatic infiltration and fibrosis. Such a change is common in tuberculosis, but it is also very common in other pulmonary conditions. It may persist for months following the resolution of lobar pneumonia, bronchopneumonia, or any type of pneumonitis. It may persist for years following complete arrest of a primary or secondary tuberculous infiltration. It is common in chronic sinus infection. It is often seen in children who have a negative Mantoux reaction.

It is important not to conceive of "peribronchial infiltration" as a tuberculous entity. Increased density of the perivascular markings to the upper lobes may or may not be of tuberculous origin. If of tuberculous origin, they may represent merely the lymphatic fibrosis of a parenchymal lesion long since absorbed and arrested. In such cases they have no more significance than any other well healed scar within the lungs. There is no justification for saddling a patient with the diagnosis of "peribronchial tuberculosis" merely because of accentuated lung markings. If the physician reading the plate is not sufficiently sure of the pathology and its significance, serial plates at intervals of a few months will soon tell him whether the increased markings are significant or not. Of course, with a definite history of pulmonary tuberculosis, all patients, whether they do or do not have increased perivascular markings, should have periodic x-ray examinations.

#### THE X-RAY VERSUS THE STETHOSCOPE IN THE EARLY DIAGNOSIS OF TUBERCULOSIS

The Subcommittee on Case-finding Procedures in Tuberculosis of the American Public Health Association, commenting on the diagnosis of pul-

monary tuberculosis by percussion and auscultation, states:<sup>1</sup> ". . . experience has now clearly indicated that the early or minimal lesions are almost invariably missed by this method, and, as a matter of fact, many of the more advanced lesions are not detected by a large number of examiners."

Experience, too, based on controlled series, shows that fluoroscopic examination is unable to detect many early cases of tuberculosis.

The Mantoux test does not differentiate between active and arrested disease.

A positive sputum is the only absolute proof of the presence of tuberculosis, but extensive disease may exist with a negative sputum.

The x-ray, read by a qualified physician, will present optical proof of the presence of even very small pulmonary infiltrations; and any abnormal infiltration, no matter what its pathological nature, should be followed by serial x-rays until its significance is revealed. When the infiltration is tuberculous, the evidence of serial plates may not be absolute, but it will be so strongly presumptive that little doubt will remain as to what course of treatment is indicated.

The conclusion, then, is that in the absence of a positive sputum there is only one way in which to discover the early tuberculous infiltration, and that is to take an x-ray. All other methods are grossly and morally inadequate.

#### A FREQUENTLY DIAGNOSED RARITY

True, primary, chronic bronchitis is a rare entity. Yet it is very commonly diagnosed. To diagnose it, and to prescribe for the chief complaint, cough, without looking for the cause of that cough, is as serious a dereliction of medical morals as the prescribing of morphine for abdominal pain without ascertaining the cause of that pain. Among the causes of "chronic bronchitis" may be: bronchiectasis, tuberculosis, emphysema, left ventricular failure, aneurism, chronic lung abscess or its sequelae, and bronchial tumors. Chronic sinus infection is always a cause to be considered. In children, two common causes of chronic cough are foreign bodies in the lungs and a purulent rhinitis due to foreign bodies in the nose. The writer has seen several cases of chronic bronchitis in children clear up after wads of foul-smelling newspaper and toilet paper had been removed from the nasal cavities. Children love to experiment with their orifices.

1. National Tuberculosis Association: "A Manual of Tuberculosis Case-Finding," 1940, p. 31.



The physician who diligently searches for the cause of his patients' coughs will seldom make the diagnosis of a primary chronic bronchitis.

#### ASTHMATOID BREATHING ASTHMA AND THE HEART

It is important to keep in mind that the type of breathing usually considered characteristic of allergic asthma is by no means pathognomonic of allergic bronchial constriction. Identical paroxysmal breathing, including the musical rales, often occurs in pulmonary fibrosis, and commonly, of course, in left ventricular failure. However, the primary cause of such breathing apparently need not necessarily be a diffuse encroachment on bronchial diameter. The writer can recall a case of asthma diagnosed by a prominent physician. When the patient died, the uncontrollable asthma was found at post mortem to be due to an aneurism. A patient seen recently with a history of asthma lasting three weeks turned out to have a tuberculous pericarditis with effusion.

Asthmatics seldom die of asthma. This is a common impression, and it appears to be true. Asthmatics commonly die of right heart failure. This is a common impression, but there appears to be good reason to question its truth. Rubin, after a very thorough investigation of the heart in asthma and emphysema concluded that cardiac enlargement in long-standing emphysema and asthma is rare.<sup>2</sup> Right ventricular enlargement was the rarest finding in Rubin's cases. Many asthmatics *appear* to die of right sided heart failure because all long-standing asthmatics have emphysema. Kountz and Alexander of Washington University School of Medicine have shown that the venous backpressure and anoxemia of advanced emphysema will produce a syndrome (rapid heart, dyspnea, cyanosis, and dependent edema) so closely resembling heart failure that careful consideration of the differential diagnosis is necessary. Rubin quotes post-mortem evidence as revealing that the effect on the right ventricle of capillary obliteration in the emphysematous lung has been grossly exaggerated.

When one considers how effectively the raised intrathoracic pressure of advanced emphysema protects the heart from an increased venous return, it is easy to see why the heart is seldom enlarged in emphysema and asthma, and why true heart failure may perhaps be even less common in this group of patients than it is in the population as a whole.

#### BRONCHITIS IS OFTEN A SILENT DISEASE, ESPECIALLY IN CHILDREN

Bronchiectasis is a very common disease. Hemoptysis is a very common symptom of bronchiectasis. All patients with bronchiectasis do not have profuse sputum, and in many of those in whom the sputum is profuse it is not foul-smelling. The patient with the least expectoration may be the one with the foulest breath.

Many bronchiectatics have little or no indication of their pulmonary pathology until they develop an acute respiratory infection. Prolonged mucopurulent expectoration following attacks of the common cold in a person who ordinarily has a slight, almost non-productive cough should arouse a strong suspicion of bronchiectasis.

#### THE TREATMENT OF LUNG ABSCESS

Ten years ago, physicians and surgeons were arguing among themselves as to whether acute pulmonary abscess should be treated by operative or non-operative measures. The mortality from medical and delayed surgical treatment averaged around 35 per cent. To-day, based almost entirely on principles conceived and practiced by Neuhof, the mortality from acute lung abscess may be held as low as 4 per cent.

Except in some cases of acute aerobic (usually bronchopneumonic) abscesses, acute pulmonary abscess should be submitted to early operation and drainage under local anesthesia. The sequelae of chronic bronchial suppuration and pulmonary fibrosis in abscesses "cured" by a non-intervention policy may be the price of such conservatism. The fact that an occasional abscess will clear up without sequelae under non-operative treatment is not an argument for delaying surgical treatment.

#### INTERPRETATION OF X-RAY FILMS

Please do not ask your roentgenologist or other consultant to read any x-ray without first supplying him with the clinical history. An x-ray is only a shadow. The clinical history is often the only clue to its cause. An infiltration along the lower lobe bronchi may be bronchopneumonic, tuberculous, or malignant; it may represent bronchiectasis, influenzal pneumonitis, or left heart failure. A radiating hilar shadow may represent beginning lobar pneumonia, hilum pneumonia, lung abscess, tuberculosis, Hodgkin's disease, or an interlobar effusion. It makes a lot of difference whether that cavity in the upper lobe is accompanied by a positive sputum, by a putrid sputum, or by a fluctuating swelling in the supraclavicular fossa containing "sulfur granule" pus.

2. Rubin, E. L.: Size of Heart in Asthma and Emphysema, *Lancet* 2:1089 (Nov. 7) 1936.



# Meniere's Disease

## A REVIEW OF ITS DIAGNOSTIC FEATURES AND REPORT OF FOUR CASES

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A disease characterized by recurring attacks of vertigo and unilateral deafness was first recognized by Meniere, a Frenchman, in 1861, as associated with a lesion in the peripheral vestibular organ. He found what is now recognized as a hemorrhagic purulent exudate throughout the semicircular canals, and it was not unnatural that the hemorrhagic content of the exudate should have been regarded as the cause of the disease—a concept which is even at the present time difficult to overcome.

In Meniere's disease, vertigo and reduced hearing are perhaps the two essential symptoms noted. However, only rarely are the other symptoms—nausea, vomiting, tinnitus, shock, and even diarrhea—absent in some of the attacks.

### PATHOLOGICAL PHYSIOLOGY

Because in Meniere's disease the attacks are paroxysmal and the mortality low, it can rarely be studied histologically, and thus it has usually been classified not as a disease entity but rather as a combination of symptoms which may occur as a result of any one of several widely separated lesions, namely:

(1) pressure on, or neuritis of, the auditory vestibular apparatus—a belief held by Dandy;

(2) circulatory disturbances — a hypothesis held by Brunner, who concludes that Meniere's disease might better be called "otitis interna vasomotoria;"

(3) disturbance of the peripheral end organs of the vestibular apparatus rather than the central ones—Crowe holds this view, which is entirely opposite to that held by his colleague, Dandy;

(4) increased pressure in the semicircular canals, attributed to faulty water metabolism which allows water to collect within the cells, resulting in overloading of the fluid in the labyrinth. Mygind, Dederding and Furstenberg are its advocates, directing their treatment toward a reduction of the edema by diminishing the fluid intake and by giving a salt-free diet;

(5) disturbances of electrolyte concentration and degree of hydration of the blood—a cause suggested by Talbot and Brown, who conclude that "there is a gradual accumulation of evidence which supports the suggestion that the conduction of the nerve impulses is probably associated with an optimal concentration of potassium in the surrounding medium. Any alteration of this concentration may upset a delicate mechanism;"

(6) local alteration in the permeability of the capillary wall, resulting in local edema, one of the reasons for the attack being an overproduction of histamine—an agent which affects capillary permeability. Sheldon and Horton, in their therapeutic tests to differentiate specific types of headaches, "discovered" this practical use of "desensitization" with histamine.

In the literature studied by Shambaugh, four cases of Meniere's disease with histologic studies are described. The similarity of the findings is striking. Hallpike described three and the fourth was added by Yamakawa. The findings are essentially a marked dilatation of the ductus cochlearis with displacement of Reisener's membrane, and usually the presence of some albumin or colloid material in the cochlear duct or in the ductus or saccus endolymphaticus. The essential pathological physiology is thus an abnormal amount of endolymph with probably some abnormality of its constituents.

The response to present clinical therapeutic measures would suggest several possible mechanisms. The disappearance of symptoms following the removal of foci of infection or of an allergic factor perhaps indicates that these factors may be responsible for the increase of endolymph and accumulation of serum mixed with endolymph. Any treatment that diminishes the tendency to edema, whether it be by limiting the intake of sodium or limiting the total intake of fluid, is in harmony with the histologic findings of abnormal accumulation of endolymph.

It is recognized, however, that all cases are not alike, the attacks of vertigo varying in degree

of severity and in periodicity of recurrence. Nausea, vomiting and tinnitus are not always present and vary greatly in degree. For this reason there is a tendency to differentiate between milder attacks which occur without all the recognized symptoms and the Meniere's syndrome. Crowe considers the presence of recurring vertigo alone, without deafness or tinnitus, sufficient evidence upon which to base the diagnosis.

The presence of tinnitus and varying degrees of deafness probably indicates that the process involves the cochlea as well as the labyrinth. The degree and extent of involvement will determine the major presenting symptoms observed clinically. These clinical observations are in keeping with the observations of Hallpike and Yamakawa. Shambaugh adds that in Meniere's disease, diplacusis is always present when the hearing is affected and concludes that this is proof of involvement of the membranous labyrinth by edema, since diplacusis cannot be produced by a lesion of the nerve or of the central pathways.

An excellent review of the clinical consideration of vertigo is given by Shuster; it will not be discussed here. The author has seen 14 cases, of which 4 are reported here.

#### CASE REPORTS

Case 1. D.P., a two and a half year old boy, was seen in January, 1942. His mother said he had attacks in which he would fall to the right, the attack lasting not more than a minute. The attacks had begun gradually six months before and were progressively getting worse. The child was able to talk during the attack and, saying "all gone, all gone" he would pick himself up after staggering to the right. There was no nystagmus during the attacks. He had had whooping cough at the age of four months; the past history was otherwise not contributory.

General physical examination revealed no abnormal findings. A caloric test revealed no response from the right horizontal canal. The left showed a normal response. A diagnosis of Meniere's disease was made, although we did not hazard a guess as to the cause. Two weeks later, he developed a right acute suppurative otitis media. A myringotomy was done, followed by an adenoidectomy. In the three months under observation, he has had but four attacks.

Meniere's disease is almost exclusively a disease of middle age or advanced age but the foregoing is a case where the recurrent vertigo began at two years of age and where removal of a focus of infection brought on improvement.

Case 2. I.T., a 52 year old man, was first seen on April 14, 1942, with complaints of having dizzy spells which left him extremely weak. The condition had started three years before. The patient had experienced three identical attacks during 1941, each lasting from two to four hours.

Examination revealed an allergic rhinitis with multiple nasal polypi. In 1936, he had had a polypoidectomy. In the left ear, air conduction was absent in the 512-, 1024-, and 2048-frequency tuning forks. The Rinne was positive, with no lateralization of bone conduction. When he was seen, his attack had already lasted four hours, and he was therefore given histamine intravenously; 2.75 mgm. of histamine diphosphate in 250 c.c. of physiologic saline solution eradicated the acute symptoms of vertigo, nausea, and vomiting.

In acute Meniere's disease, it is usually impossible to give any type of medication by mouth because of the associated nausea and vomiting. Histamine has this one chief advantage over other types of therapy.

The mechanism involved in this case may have been an allergic condition resulting in edema and accumulation of fluid gradually encroaching upon the cochlear portion as shown by his reduced hearing on the left. This patient complained of no tinnitus. Diplacusis was not noted.

Case 3. E.H., a 54 year old woman, was first seen in December, 1941, because of attacks of dizziness, nausea, and vomiting. The first attack occurred some three years before, but in the past five months, she had averaged one a week. These attacks usually lasted for two hours; the longest had lasted for three days. Each attack of vertigo was accompanied by shock and an acute attack of diarrhea. She dates her diminished hearing and constant tinnitus of the left ear from about three years ago. In the past month, she had been doctoring herself by taking "gas tablets" every day and was now seeking medical care not for her nausea, but because she was having more attacks of vertigo. There was no history of allergy.

Examination revealed hypertrophic granulation tissue in the post-pharyngeal wall. The membrana tympani were normal in both ears. Hearing test revealed reduced response to tuning forks in all frequencies (negative Schwabach), and a positive Rinne with no lateralization of bone conduction. The Barany test was normal, though the caloric test showed slight delay in the left ear, responding in 1 minute 40 seconds (normal 40 seconds). Patient was taken off the "gas tablets" (which proved to be a sodium bicarbonate compound) and put on Furstenberg's program of a salt-free neutral diet and six capsules of 7½ grains (0.5 grams) of ammonium chloride three times a day for three days, then omitted for two days. (Ammonium chloride is strongly acid, and, being excreted as urea and sodium chloride, assists in ridding the body of surplus accumulations of sodium in edema fluid. After about three days, however, the kidneys "learn" to excrete the ammonium radical as such instead of as urea: hence the two-day intermission, after which ammonium is again excreted as urea.) Our experience is that enteric coated tablets are less effective than the plain tablets. The results have been splendid.

The diagnostic feature here is the presence of all cardinal symptoms, indicating extensive involvement of both the labyrinths and the cochleas. Dietary mistakes or medicine containing sodium salts precipitate attacks in some patients.



Case 4. J.D.T., a 32 year old man, was first seen in November, 1941, with an attack of vertigo, nausea, and vomiting, and in semi-shock. During the attack he noticed ringing in the right ear. These attacks had been occurring for three years; they usually lasted from five to twelve hours, and the patient claimed they were precipitated if he did not take a daily enema of soda and warm water. He had lost seven pounds in one month and complained of a dull headache which he described as a "pressure" inside the skull. He had noticed progressive deafness in his right ear for the past three years.

Examination revealed a diminished Schwabach to the right, a negative Rinne, and a lateralization to the right in bone conduction. A nasopharyngoscopic examination revealed a mucopurulent reservoir in the sphenoid-ethmoidal recess with a slight deflection of the nasal septum.

A submucous resection was done in December, 1941, which apparently did not contribute toward reducing either the frequency or the severity of the attacks. For immediate treatment he was put on histamine, which brought a prompt response. He is now on the salt-free diet and ammonium chloride regime of Furstenberg. For the past six months, his attacks have been reduced from once every week to once a month. His last severe attack was on March 15, 1942, from which date he has complained of increased recurrences of tinnitus. This patient is able to sense—like an epileptic with his "aura"—an impending attack. We have found that .275 mgm. of histamine diphosphate usually alleviates the symptoms.

The diagnostic feature of this case is the advanced state of the disease.

#### ADDITIONAL SYMPTOMS

In 6 of the 14 cases seen, headache was one of the cardinal symptoms. This has been described variously as follows: "Feel as though some one is hammering inside against the skull on my left side"; "Throbbing headache on the right half of the head from inside the eye to the back of my neck"; "My headache comes before the dizziness." Usually the patients have taken headache pills, or they may have had an anodyne prescribed for them or have received therapeutic tests with ergotamine to rule out migraine or erythromelalgia of the head. Careful history often clears the patient's misinterpretation of these headaches as that of an attack of vertigo.

We have likewise noticed tinnitus accompanying the attacks of vertigo in 5 of the 14 cases, leaving them free from ringing in the ears between attacks. One had a constant tinnitus.

#### CONCLUSION

In Meniere's disease, vertigo is the essential feature; it represents a local process involving the labyrinth. The degree and extent of involvement of the labyrinth and cochlea will determine

the major symptoms observed clinically. It is possible that progressive deafness without obvious cause may be the result of primary involvement of the cochlea.

Departure from the normal physiological response (caloric test) indicates advanced stages of the disease process. In most cases the caloric tests give results within normal physiological limits. Because of this sequence of the disease, a perfect treatment for Meniere's disease has not been announced. The present report is actuated primarily by the desire to contribute to the clinical study of cases of recurrent vertigo, which, it is to be expected, will be encountered from time to time in patients suffering from Meniere's disease.

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# The Loeffler Syndrome

REPORT OF A CASE

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In 1931 Loeffler described transient pulmonary infiltrations associated with varying degrees of eosinophilia. Aside from this finding, emphasis was not placed on the allergic relationship until other investigators noted the constant association of an allergic state with this clinical picture which has since come to bear the name of "Loeffler syndrome."

This syndrome usually occurs in children. Asthma is the most frequently associated allergic manifestation, although all other types of allergy have been noted. Whenever a definite etiologic agent has been discovered, which has been infrequent, it has most often been found to be an intestinal parasite.

Hoff and Hicks found in reviewing the literature that eosinophilia occurred in about the same proportion and degree in this syndrome as in other allergic conditions. They pointed out that though there may in rare instances be an absence of eosinophiles, they may occasionally rise as high as 60 per cent or more.

The x-ray picture described by Loeffler, and that which is usually encountered, is one in which pulmonary infiltration occurs in varying degrees most frequently in the bases, and shifts or changes its position from time to time. Often the roentgenogram made in the routine examination of an asthmatic or other allergic patient will call attention to the diagnosis. The areas of infiltration tend to disappear very rapidly, leaving only a fine, fibrous, honey-comb type of scar, often to reappear in a new location with any recrudescence.

The case presented is one in which there was a marked allergic reaction, with only slight eosinophilia, and in which the etiologic agent was discovered.

## CASE REPORT

E. M., a 15 year old Puerto Rican girl, was admitted to the Koloa Hospital on the evening of March 26, 1942, complaining of generalized malaise and a rather severe non-productive hacking cough occurring in paroxysms for the last week. Two days prior to admission wheals appeared over the abdomen, spreading out over the proximal half of all extremities, including the neck and face. She believed she had had a fever during this time.

Past history revealed that, while otherwise well until the onset of the present illness, she had frequently suf-

fered from rather typical asthma since early childhood. There was no tuberculosis in the family and she had not knowingly been exposed to tuberculosis. There had been no weight loss; her maximum weight was 110 pounds, shortly prior to admission. Past history was otherwise entirely negative.

Physical examination revealed a young, well developed and well nourished girl who looked ill. Her face and trunk were flushed and covered with discrete and confluent wheals which extended down onto the arms and legs. The patient had a dry, hacking, non-productive cough; such sputum as could be obtained was devoid of frothiness, blood tinging, or any special characteristics. There was increased lacrimation. The pharynx was clear. The tonsils were enlarged, but appeared innocuous, and no pus could be expressed from them. The breath had a fetid odor and the patient complained of a bad taste in her mouth. The lymph nodes were not enlarged. The chest was symmetrical and expansion was about equal on both sides. Percussion revealed a very definite area of dullness over the left lower back of the chest, toward the spine. Moist and crackling rales were heard over both bases, anteriorly and posteriorly, and occasional fine rales were heard toward the left apex in the region of the second and third interspaces. Vocal fremitus was increased and pectoriloquy was present over the left lower chest in the back. No limitation of the excursion of the diaphragms on either side was noted. The remainder of the physical examination was negative.

In spite of these findings, the mouth temperature was only 99 F. on admission, without any previous medication. The leukocyte count taken at this time was 34,350; the differential count showed 75 per cent polymorphonuclears, 3 per cent eosinophiles, and 22 per cent lymphocytes. There was a trace of albumin in the urine.

Chest x-ray taken on the night of admission showed an area of infiltration in the lower lobe of the left lung at the diaphragm, extending from the midline from behind the heart shadow. A second less dense area of infiltration was visible near the left apex.

Only a small amount of muco-purulent sputum could be obtained for typing and here pneumococci were conspicuous by their relative absence. After considerable search and typing, it was thought that a type 7 pneumococcus was found. On this basis sulfapyridine therapy was started. The patient was also given adrenalin, which seemed to have an even more transitory effect than is usually encountered in urticaria.

On the third hospital day, the patient complained of pain in the left side of the chest just outside of the precordial region, and for the first time complained of pruritus from the urticaria. The white blood count had risen to 23,450, though it had dropped on the intervening days to levels around 16,000. The temperature had risen to 101.2 F. and the patient was more restless. A chest x-ray taken at this time showed that the area of infiltration in the apex had moved upward and away from the medias-

tinum, and that in the region of the left base the infiltration had shifted upward about an inch, leaving an area of clear lung tissue in between.

The sulfapyridine was discontinued. The temperature gradually returned to normal in the next two days and did not rise again. The pain in the chest abated somewhat, although the patient continued to appear just as ill and the urticaria remained unchanged. Another x-ray of the chest on March 31 showed essentially the same picture as before, except that the area of infiltration in the apex was less dense. The leukocyte count had dropped to 9,700, while the differential count remained about the same. The Mantoux test was found to be negative.

On April 2 the patient's stool was discovered to be heavily infested with ova of *strongyloides intestinalis* and *ascaris*. The patient was given Sharp & Dohme 'Crystalloids', following which several *ascaris* were passed. The stools were negative thereafter. The day after this treatment the patient suddenly showed marked improvement: her urticaria had entirely disappeared and she appeared bright and alert.

A chest x-ray on April 8 showed that the infiltration at the left apex had entirely disappeared and the infiltration at the left base had become much smaller and much less dense. On April 10 the patient was discharged from the hospital entirely asymptomatic, and when seen on subsequent visits to the office had no signs of recurrence.

#### DISCUSSION

This case seems to demonstrate several interesting points. The peculiar characteristics of the transitory and shifting pulmonary infiltrations are to be seen in the accompanying illustrations.

At no time in this patient did the eosinophilia exceed 6 per cent, although it was always present to the extent of at least 3 per cent. Such a low eosinophile count, though not common, is said to occur in a small proportion of other allergic states.

While in the majority of cases it has been impossible to find the etiologic agent for the underlying allergic condition, it has most often been traced—when found at all—to an intestinal parasite. In this case two separate parasites were found, *strongyloides intestinalis* and *ascaris*, both of them very frequently harbored in the Puerto Ricans in Hawaii. Furthermore, as in the Hoff and Hicks

case<sup>3</sup> and others in which the agent was found and immediately removed, the disappearance of symptoms was almost dramatic.

This case appears to fulfill very adequately the clinical picture of the Loeffler syndrome as set down in the literature.

#### SUMMARY

A case of the Loeffler syndrome is presented in which the disappearance of clinical signs and symptoms immediately followed the removal of a probable etiologic agent or agents.

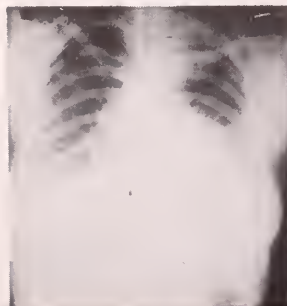
This case is typical of the Loeffler syndrome in that it occurred in a young individual. There was never any marked elevation of temperature in proportion to the apparent illness of the patient. X-ray findings showed pulmonary infiltrations in the left base and left apical region, both of which shifted somewhat during the course of the disease, the former upward and the latter outward. The apical infiltration varied considerably in intensity before specific treatment was instituted. Although the patient gave a history of asthma from childhood, the allergic manifestation at the time of the present illness was a severe urticaria. The eosinophilia was lower than in the majority of cases of this syndrome. The probable etiologic agents, intestinal parasites, were found, and upon their removal all signs and symptoms promptly disappeared.

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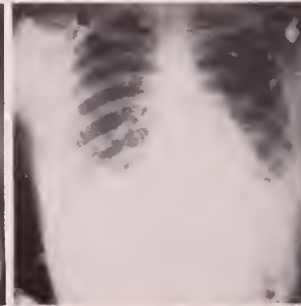
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MARCH 31, 1942



APRIL 8, 1942





# Massive Dose Arsenotherapy of Early Syphilis

ADAPTED TO PLANTATION USE: REPORT OF NINE CASES

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"Fools rush in where angels fear to tread" could undoubtedly be said of a plantation doctor doing general practice who uses massive dose arsenotherapy for early syphilis.

The purpose of a paper on this subject with only 9 cases to report is not to add anything to the original work of Hyman<sup>1</sup> and his associates but to show that in certain selected cases this method of treatment of early syphilis does have a place in the plantation doctor's armamentarium in the treatment of this disease.

Syphilis has never been a serious problem to the plantation physician in Hawaii. About 8 to 10 per cent of serologic tests for syphilis were positive on the island of Kauai several years ago (1935-1938). However, it must be remembered that the majority of the tests were made on people suspected of having syphilis and also on laborers who were frequently shifting from one plantation to another. Naturally a high percentage of positive tests could be expected among such people. However, during seven and one half years of practice on one of the larger sugar plantations I have seen (and recognized) only eight or ten cases of primary syphilis and about the same number of cases of secondary syphilis.

Nevertheless syphilis is present, and it behooves us to try to eliminate it. Probably the treatment of syphilis by individual physicians varies as much as does the treatment of the common cold. True, all doctors use arsenic and bismuth as their main drugs, with mercurials and iodides as auxiliary weapons, but the actual rules for giving the drugs vary widely. The massive dose technique is just another variation of the use of arsenic, and not so radical as one might believe.

Many years ago Ehrlich gave us the result of his six hundred and sixth attempt to find a drug to cure syphilis, in the form of arsphenamine. It was his hope to cure syphilis with one or two injections of this drug. He was doomed to disappointment, because the drug was too toxic in doses strong enough to completely rid the body of the spirochaeta pallida. His massive arsenother-

apy was replaced by multiple injections of arsenic and administration of the heavy metals. While the multiple injection method has proved effective and will always no doubt be the most important method of treating any type of syphilis, still it has its disadvantages, the most important one being the length of time an individual is under treatment. This is a decided handicap on a plantation where patients with syphilis are frequently moving elsewhere and where they must be forced to take treatment.

When symptoms of syphilis have disappeared, unless the patient has had the horrors of the disease instilled into his very soul, it is most difficult to get him to continue the treatment. His ulcer is cured; why take more treatments? His skin rash is gone; why take medicine that will make him sick once or twice a week?

Even though Dr. George Baehr<sup>2</sup> of New York in speaking of the massive dose therapy said, "The technique should not be released to the general profession at present, not until a still wider hospital experience has been gained," it was thought that the cases reported here were justified in receiving this treatment.

## CASE REPORTS

Case 1 was a 22 year old Japanese prostitute who presented herself to the plantation dispensary for a routine weekly examination. Her Wassermann and Kahn were positive. She had no evidence of a primary lesion and had no secondary manifestations. She gave a definite history of a negative blood test three months before with a note from a reputable Honolulu physician to prove it. Under such circumstances it seemed reasonable to assume the disease in this individual was of short duration.

This woman was a menace to our community. Our first impulse was to send her back to Honolulu. It was feared, however, that she might be lost for purposes of treatment if she went back, and would in the meantime infect many people. It was at about this time that the work of Hyman and his associates received much publicity in one of the current lay magazines.

She was admitted to Wilcox Memorial Hospital July 11, 1940, and had the so-called "five-day treatment," using the method and procedure as outlined in detail by Hyman and his associates.<sup>1</sup> She was given 0.2 grams



of Mapharsen daily, making a total of 1.0 grams of Mapharsen for the entire time. She was discharged July 16, 1940 and allowed to return to her profession one week after treatment. To date no cases of syphilis on Kauai have been traced to her.

In Hyman's original article the average time for the achievement of seronegativity is given as slightly over twelve weeks. Blood tests were taken on each day of treatment and at short intervals thereafter. Laboratory reports for this woman show the following results:

DATE	WASSERMANN	KAHN
7- 2-40	3 plus	4 plus
7-11-40	4 plus	4 plus
7-12-40	4 plus	4 plus
7-13-40	4 plus	4 plus
7-14-40	3 plus	4 plus
7-15-40	3 plus	4 plus
7-16-40	Negative	4 plus
7-19-40	Negative	4 plus
7-30-40	Negative	4 plus
10- 8-40	Negative	3 plus
11-19-40	Negative	Negative
1-13-41	Negative	Negative
4- 7-41	Negative	Negative
8-10-41	Negative	Negative
1- 2-42	"Positive"	"Positive"

About January 1942 it was learned from correspondence with a doctor on another island that this woman had a positive Wassermann and Kahn. She was still practising her profession. She may have had a new infection. If so, undoubtedly she had a cure by the five day treatment; but if she had a spontaneous reversal of her blood serology, we must assume that the treatment was a failure. We will probably never know which was the case.

Case 2 was also a Japanese prostitute, 24 years old. She had a definite "rash" similar to the eruption of early measles. Her serology was found to be positive. She was admitted to the hospital August 7, 1940, given the treatment, and discharged August 13, 1940.

The rash cleared immediately and in a week or ten days the woman was allowed to return "to work". Very shortly after treatment she gained ten pounds and improved in general health. She was followed by weekly examinations and blood tests and had a complete serologic reversal at the end of the thirteen weeks.

Case 3 was a 19 year old Korean girl treated in September 1940. In July 1940 this patient had been given a routine examination for employment and her Wassermann was negative. She was married shortly afterwards and was not seen until September when her husband applied for work at the plantation and was found to have a positive Wassermann. The girl's Wassermann was taken again and was found positive. She was hospitalized and given a five day treatment. Her husband was given routine weekly treatments.

On November 25 her Wassermann was negative. She became pregnant in December 1940 and had a perfectly normal pregnancy with a normal delivery and normal child, weighing 8 pounds 1 ounce in September 1941. Cord Wassermann at this time was negative. Child's Wassermann in May 1942 was negative. This patient is again pregnant and a routine Wassermann is again positive. This is probably a recurrence.

It is planned to repeat the five day treatment on this woman even though she is several months pregnant.

Case 4, a 36 year old Portuguese tractor driver, who was exposed on February 18, 1941, was seen on March 26, 1941 with a suspicious lesion on the prepuce. Darkfield on March 28 showed, according to pathologist's report, "Chancre on underneath side of penis literally teeming with spirochetes." Wassermann and Kahn positive.

Treatment was started on March 29 at which time darkfield was still positive but only slightly so. On March 30, "Lesion more clean than day before and darkfield negative." This man completed his treatment without complication except a low grade thrombophlebitis of the right arm, and went back to work in April 1941. Wassermann and Kahn negative in May 1942.

Case 5, a 30 year old Filipino, came to the dispensary in April 1941 with a penile lesion, darkfield negative but Wassermann and Kahn reaction positive.

Patient sent to hospital April 7, 1941 and had the five day treatment. The day after treatment was completed the lesion was almost completely healed. The Wassermann was checked again and found to be negative in May 1942.

Case 6, a 33 year old Filipino cane cutter, entered the hospital August 12, 1941, with a positive darkfield and negative Wassermann. He was given routine treatment. The chancre was free of spirochetes on the second day. The chancre was not healed on discharge from hospital on August 17; however, it did heal within ten days after discharge. Wassermann was never positive in this case. Shortly after completion of treatment, patient went to Honolulu and a further record was never obtained.

Case 7, a 33 year old Filipino cane cutter who had a darkfield positive chancre on the penis but negative Wassermann, entered hospital August 19, 1941 and was discharged August 25. Chancre healing on discharge from hospital. Wassermann still negative on September 8, 1941. Patient was lost by going to Honolulu in January, 1942; no record could be obtained.

Case 8, a 50 year old laborer, was admitted to the hospital August 27, 1941 with a penile chancre which was positive for spirocheta pallida, and discharged September 2. Wassermann negative on admission and still negative in May 1942.

Case 9 was a 21 year old part Hawaiian prostitute who came to Kauai because she had "bad blood" and wanted to take the "quick treatment." She gave a history of having a negative Wassermann in June but had had a skin eruption later which was no longer present. Wassermann and Kahn were positive. Patient entered hospital October 8 and was discharged October 13, 1941. This patient returned immediately to Honolulu and many attempts to locate her have failed.

#### TECHNIQUE

The technique used for this treatment was almost identical to that described by Hyman and his co-workers.<sup>1</sup>

Mapharsen .04 grams was dissolved in 250 cc. of 5% glucose in distilled water. Five such doses were given continuously over a period of eight to ten hours. It was regulated so that it would require at least eight hours for the total dose to flow into the vein. The arm was restrained in order to keep the patient from moving should he or she fall asleep. The needle was taped well, to keep it from slipping forward or out of the vein. It was found that veins in the forearm were the most satisfactory. All patients received a minimum of 1,000 mgm., and one man received 1,200 mgm., of Mapharsen.

Daily urinalyses were done and daily blood counts taken. Temperatures were taken every two hours and constant watch made. No other special precautions were taken. Patients were encouraged to eat a regular hospital "house diet" Bowels were made to move each day, by enema, if necessary. Patients were allowed and en-

couraged to get out of bed following treatment each day.

#### COMPLICATIONS

Painful arms and second-day elevations of temperature occurred in every case.

Very little change was noted in blood picture or urinalysis. One patient (Case 1) was readmitted with a marked dermatitis lasting forty-eight hours, two days after discharge.

Almost every case complained of pain in the arm, particularly in the upper arm. There was one case in which the needle pulled out of the vein and a very painful swelling resulted at the site of the subcutaneous injection; however, there was no serious effect and the lesion cleared quickly under hot wet fomentations.

One case developed a thrombophlebitis which lasted four or five days after discharge from hospital.

#### *Statistical analysis of nine cases receiving massive dose arsenotherapy of syphilis*

CASE	SEX	AGE	RACE	SYPHILIS	LABORATORY	GRAMS OF MAPHARSEN	REACTIONS	RESULTS
1	F	22	Japanese	Early latent	Pos. serology	1.0	99.6° 2 days. Severe pain in arm. Dermatitis 2nd & 3rd days. Abdominal cramps.	W & K neg. 2 wks. & 14 wks. but pos. Jan. 1942
2	F	24	Japanese	Secondary	Pos. serology	1.0	99.6° 4th day, 102° 6th day. Severe pain in arm. Nausea & vomiting.	W & K neg. 13 wks. Neg. Jan 1942
3	F	19	Korean	Secondary?	Pos. serology	1.0	101.8° 2nd day, 100° each day. Pain in arm. Dermatitis disappeared. Nauseated; developed albuminuria with casts. Not very coop.	W & K neg. 9 wks. Pos. May 1942
4	M	36	Portuguese	Primary	Pos. serology Pos. darkfield	1.2	100-100.8° every day for treatment. No particular discomfort in arm. No dermatitis. Developed thrombophlebitis of right arm last day.	Chancre healed quickly. Neg. serology May 1942
5	M	30	Filipino	Primary?	Pos. serology Neg. darkfield	1.0	101° highest, 2nd day. Slight pain in arm. No dermatitis. No complication.	Chancre healed quickly. Neg. serology May 1942
6	M	33	Filipino	Primary	Neg. serology Pos. darkfield	1.1	100° 5th day. Some pain in arm. No dermatitis. Phlebitis of left arm.	W & K neg. 2 months later. Final result — Pt. left Kauai
7	M	33	Filipino	Primary	Neg. serology Pos. darkfield	1.0	99.4° 5th day. No pain in arm. No dermatitis. No complications.	W & K never pos. Chancre healed quickly. Pt. left Kauai after treat.
8	M	50	Filipino	Primary	Pos. darkfield Neg. serology	1.0	99.4° highest, 4th day. No pain in arm. No dermatitis. No complication.	W & K never pos. Chancre healed quickly. W & K still neg. May 1942
9	F	21	Part Hawaiian	Secondary?	Pos. serology Slight dermatitis	1.0	99.2° highest temp. Slight pain in arm. Dermatitis cleared. No complication.	No record obtained; returned to Honolulu. No follow-up.

## COMMENT

The literature on the massive dose therapy of early syphilis is being added to more and more frequently. Already variations of the first methods are appearing. H. Gorden<sup>4</sup> says "Early syphilis in 84 patients was treated by the intravenous administration of Mapharsen, 20 mg. every two hours, five times daily for five days; results were good."

Herbert Rattner<sup>5</sup> reports, "The most significant new development in the treatment of syphilis has been the introduction of the so-called five day massive dose therapy for early cases."

Five deaths have occurred in one series of 1600 cases. These deaths were presumably from toxic encephalitis.

It can be seen that this type of treatment is not without danger. However, in closing, without trying to draw any conclusions from these few cases, it does seem that from a public health standpoint, this type of therapy has something to offer the *early* case of syphilis that no other form of treatment so far has offered.

Another point which must borne in mind is the false sense of security which may develop in minds of both doctor and patient. Anyone using this type of treatment should make it a point to check the patient for syphilitic manifestations as well as blood serology at frequent intervals. Undoubtedly this type of treatment will continue to be used more and more each year. As more cases are reported more will be known of the results of this type of treatment and sooner or later unquestionably the massive dose arsenotherapy started by Hyman—or some modification of it—will have a very definite place in the treatment of early syphilis.

## DISCUSSION

DR. HARRY L. ARNOLD, JR.: Dr. Wallis has kindly asked me to comment on his paper from the syphilological

standpoint, though he said he feared I might agree with his opening paragraph.

The standard modern treatment of syphilis is admittedly unsatisfactory, chiefly because it is so time-consuming that few patients, as Dr. Wallis points out, can be compelled to submit to a full course of treatment. The modern treatment of syphilis as it is carried out by the average general practitioner is even less satisfactory.

The five-day plan does away with many of these disadvantages. It is easily adhered to, so that uniformity of treatment is readily achieved; it renders early active cases non-infectious immediately (and probably usually, though perhaps not always, permanently); it is comparatively inexpensive; and it is all done with "in one fell swoop," thus eliminating treatment-lapses.

But even accepting at their face value (as many of the foremost syphilologists, notably U. J. Wile, have done) all the reports of the efficacy, and seeming permanence of the results, of this treatment method, we must not forget that the five day plan offers one more thing. It offers roughly one chance in a hundred of hemorrhagic encephalitis, and one chance in three to five hundred of death. *Is your patient willing (and qualified), and are you able, to absorb that relatively huge element of risk?* Always remembering, of course, that while "cure" by the older method demands the patient's regular return for treatments for a year or two, the risk of death by that method is more than a hundred times less.

This is the decision that must be made. If you and your patient face it and make it, more power to you; but if you merely ignore it, you are indeed "where angels fear to tread!"

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# The Diphtheria Problem in Waimea District

K. M. AMLIN, M.D.

Waimea, Kauai

A survey reveals that 15 cases of diphtheria were admitted to Waimea Hospital in the years 1939-1941. Every case diagnosed was admitted to the hospital, even though asymptomatic, and held until two consecutive throat cultures were negative for diphtheria bacilli. All contacts of the patients' families were examined and throat cultures taken. In one family the mother and two siblings were found to be carriers and were hospitalized. In 8 of the 15 cases greyish membranes were found on the tonsils. Five of the cases were definitely asymptomatic carriers. There were no deaths and very little morbidity among these cases.

This seems to be a high incidence of diphtheria for a small community which otherwise has a good health record. In fact, one wonders why we have diphtheria at all. We have no small pox; and diphtheria, like smallpox, can be prevented. Territorial law demands that children be immunized against smallpox and diphtheria before entering school. The important years are not just before entering school, but the first two years of life. The child receives immunity from the mother which lasts until it is about eight months old. The Board of Health requests the parents to begin having the child immunized at the age of eight months.

Diphtheria is a vanishing disease in communities where the active immunization of pre-school children is practiced. However, carriers of virulent diphtheria bacilli are found from the arctic to the tropics. They average 6 per cent of the population the world over. Infection with diphtheria bacilli is just as prevalent in the tropics and warm countries as in the temperate zone. The disease is, however, much less common in warm countries and also much milder. These cases confirm that statement.

Disappearance of bacilli from nose and throat cannot be hastened by the giving of antitoxin. The accompanying table shows that these cases were given antitoxin ranging from a low dosage of 1000 units in the carrier cases to 20,000, 30,000, and even 40,000 units in one moderate diphtheria case. The number of hospital days for each patient varied between a low of five days and a high of forty-three days. No cases were discharged until two consecutive negative cultures had been ob-

tained. One case was repeatedly positive with no symptoms or complaints. This child was subjected to tonsillectomy, and one week later negative cultures were obtained. The average hospital stay for these patients was about ten days.

Rosenau states that the diphtheria bacilli usually disappear in about 50 per cent of cases by the time the local membrane has disappeared and that 1 per cent continue as chronic carriers. The virulence of the diphtheria bacilli is not lessened by the development of the carrier state. In all of our cases the bacilli disappeared from nose and throat several days or even weeks after the membrane had disappeared.

Cases of streptococcal tonsillitis with follicular patches resembling false membrane may occur in diphtheria carriers. The laboratory report in two cases showed streptococci and pneumococci as well as diphtheria bacilli. In one case, sulfapyridine was given; in the other, sulfathiazole. In both cases the membrane disappeared rapidly. Sulfathiazole was given to 5 other patients with greyish membranes on their tonsils before the laboratory reports were returned. The membrane in all these cases cleared rapidly. The use of sulfathiazole did not seem to affect the disappearance time of the diphtheria bacilli from the throat.

Up to 1940 the infants in this community were given one injection of diphtheria toxoid (alum precipitated). At that time, the two-injection technique was started because too many cases of diphtheria and too many diphtheria carriers were found. No carriers of diphtheria have been seen in the first five months of 1942.

In 1941, Dr. B. O. Wade, senior surgeon at Waimea Hospital, suggested and started a program of Schick testing all pre-school children on Kekaha plantation to find out whether our single and double dose toxoid injections were actually immunizing the children. All Schick tests were read on the fifth day. Schick tests were done on 70 children at least three months after they had received two doses of alum-precipitated toxoid; 3, or 4.3 per cent, were positive. Schick tests on 150 children who had

had one dose of alum precipitated toxoid showed that 30 of them, or 20 per cent, were positive.

The immunization records of the 15 cases under discussion showed that 8 had had one injection of toxoid, 2 had had two injections of toxoid, and 1 had had three injections of toxin-antitoxin; the remaining 4 cases had no record of immunization. The ideal system is to give two toxoid injections starting at eight months of age, followed by a Schick test three to six months later to pick up the few in need of further immunization.

### CONCLUSIONS

1. Diphtheria in Hawaii is a mild disease.
2. Diphtheria can be prevented by proper immunization of infants; however, diphtheria carriers may still be found among those immunized.
3. All children with suspicious membranes in pharynx or nose should be given sulfathiazole or sulfadiazine and diphtheria antitoxin immediately without waiting for laboratory diagnosis, unless the Schick test is known to be negative, in which case the sulfa drug should be given alone.

#### *Analysis of Diphtheria Cases and Carriers, Wainea District, Kauai, 1939-1941*

CASE	AGE	UNITS OF ANTITOXIN GIVEN	DAYS IN HOSPITAL	SEVERITY	PREVIOUS ACTIVE IMMUNIZATION	SYMPTOMS AND SIGNS
1	2	5,000	30	Carrier	2 toxoid	none
2	35	1,000	5	"	none	"
3	10	1,000	7	"	3 doses toxin- antitoxin	"
4	15	1,000	7	"	1 toxoid	"
5	4	5,000	9	mild disease	"	sore throat
6	18	20,000	6	mild	"	membrane rt. tonsil
7	10	10,000	13	"	"	red pharynx
8	5	20,000	6	"	2 toxoid	membrane lt. tonsil
9	5	20,000	8	moderate	no record	membrane both tonsils
10	2	10,000	10	mild	1 toxoid	"
11	10	5,000	12	"	none	greyish membrane both tonsils
12	3	40,000	10	moderate	toxoid	red throat
13	8	30,000	40	"	"	membrane both tonsils
14	15	10,000	11	mild	no record	"
15	4½	10,000	9	"	toxoid	membrane left tonsil



# Regional Anesthesia

EXPERIENCES IN TEN YEARS OF GENERAL PRACTICE

MARVIN A. BRENNKE, M.D.

Eleele, Kauai

Local and regional anesthesia are not used as much as they deserve to be, either alone or in combination with a general anesthesia. Regional anesthesia should be studied thoroughly, especially by those who may have to attend war casualties. It is the most nearly ideal anesthetic for the patient, the doctor, and the nurse. It minimizes shock in the patient; it enables him to cooperate with the doctor during surgery, and with the nurse while being transported from operating room to x-ray room or to bed; and it permits him to assist in his own immediate post-operative care.

Local and regional anesthesia are two distinct entities. Local anesthesia—infiltration of an anesthetic solution locally into the tissues to be cut—is so simple that it requires no training; the use of regional anesthesia, however, requires a review of anatomy and knowledge of a clearly defined technique.

An excellent presentation of the subject may be found in Labat's classical work<sup>1</sup>. I have found it advisable, however, to modify a few of the techniques described here. One of these is the preparation of procaine solution by adding procaine tablets out of a stock bottle to sterile normal saline immediately before it is used<sup>2</sup> instead of sterilizing the procaine solution itself. Heat always causes some degree of deterioration of the drug, reports to the contrary notwithstanding, and this method insures full potency of the solution. Since improper technique and deterioration of the anesthetic solution are the only two reasons for an unsatisfactory anesthesia, the elimination of one of these permits a definite check on the other. No infections have been observed from this method in the past five years, in either minor or major surgery.

## CRANIAL NERVE BLOCKS

Trigeminal or Gasserian ganglion block is indicated for extensive traumatic surgery or other operations on the face. It is not as difficult to do as it appears, and gives excellent anesthesia of the entire side of the face.

Maxillary block is done by the zygomatic, orbital, or oral route. Only the first route has been used by me. It is easy to do if one keeps in mind the relationship of the sphenomaxillary fossa to the pterygoid process.

The mandibular nerve may be blocked either by an extra-oral or oral route. The former has two approaches. Only the zygomatic route has been used in my practice. It is not difficult after a study of the relationship of the foramen ovale to the pterygoid process.

## PARAVERTEBRAL BLOCK

Paravertebral cervical block by the lateral route can be performed accurately with excellent anesthesia of the entire neck. In thyroidectomy it has definite advantages over local infiltration. There is no distortion of tissues, the patient has less discomfort, and the dissection is not interrupted by repeated injections of the anesthetic.

Paravertebral dorsal and lumbar blocks do not give as high a percentage of complete anesthesia as desired. These blocks are the most difficult of all to do, and they should not be attempted in an obese individual. The large amount of adipose tissue around the nerve segments makes accurate deposition of the solution very difficult. However, when the anesthesia is satisfactory, it is better than a spinal anesthesia for a specific operation in the abdomen when exploration is not necessary. In cholecystectomies the patient may be changed to any position without influencing the blood pressure or pulse. A semi-sitting position, which this anesthetic permits, gives an excellent exposure of the biliary tract and duodenum. In herniotomies and appendectomies it excels local infiltration, field block, or spinal anesthesia. In a recent case of traumatic rupture of the spleen a paravertebral dorsal block supplemented by ether would have been much better than an abdominal field block whereby the posterior parietal peritoneum and lower ribs were not anesthetized. A spinal anesthetic was not used in this case because the patient did not improve preoperatively from shock.



## CAUDAL BLOCK

Caudal block is the most satisfactory anesthesia for cystoscopy in the male and in the adolescent female. In the male it relaxes the bladder sphincters so that no trauma of the deep urethra is produced, and in the adolescent female the anesthesia produced in the external genitalia is desirable. A twenty gauge two-inch needle is more easily inserted into the sacral hiatus than the long spinal puncture needle suggested by Labat. The shorter needle gives better tactile sensation to the fingers and the deposition of the fluid just past the sacrococcygeal membrane gives as good an anesthesia as the deposition of the fluid two inches above the membrane.

Transsacral plus caudal block gives an excellent anesthesia for hemorrhoidectomies. Though more difficult and time-consuming than a low spinal anesthetic it is to be preferred. The prolonged anesthesia post-operatively and the absolute freedom from spinal reactions warrant its use.

## BLOCKING THE EXTREMITIES

Brachial plexus block for trauma of the upper extremity is the most nearly ideal of any anesthesia, local or general. The patient is able to cooperate in the application of casts or in the taking of x-rays; the period of anesthesia permits unhurried operative procedures; and the patient improves from shock as soon as the anesthesia is established. The supraclavicular route is the best method of approach.

Blocking of the ulnar and median nerves at the wrist with subcutaneous infiltration, bracelet fashion, gives excellent anesthesia of the hand. Similarly, anterior and posterior tibial block, with a subcutaneous ring of infiltration at the ankle, gives excellent anesthesia of the foot.

Blocking of the peripheral nerves at the elbow or knee have not been used enough to warrant an opinion of their value.

## AUTONOMIC BLOCKS

Splanchnic anesthesia may be done by either the anterior or posterior route. By using the posterior route according to Kappis' technique and doing a field block of the abdomen, the upper abdominal viscera are rendered insensitive by the time the abdomen is opened. If the anterior route by Braun's technique is used, extreme gentleness in the retraction of the liver and stomach are necessary to prevent the abdominal contents from bulging out while the needle is being placed in the region of the first lumbar vertebra between the aorta and the vena cava. The latter approach for subtotal gastrectomies has given better results in some cases than spinal anesthesia with nupercaine or pontocaine. High spinal anesthesia occasionally fails to give proper relaxation for partial gastrectomy, and in these cases a supplementary anterior splanchnic block is ideal.

## CONCLUSIONS

1. Regional anesthesia is not difficult when a definite technique is followed.
2. Regional anesthesia is one of the best anesthetics in either traumatic or non-traumatic surgery.
3. Experiences with regional blocks as described in a classical work are presented.

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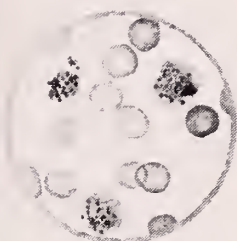
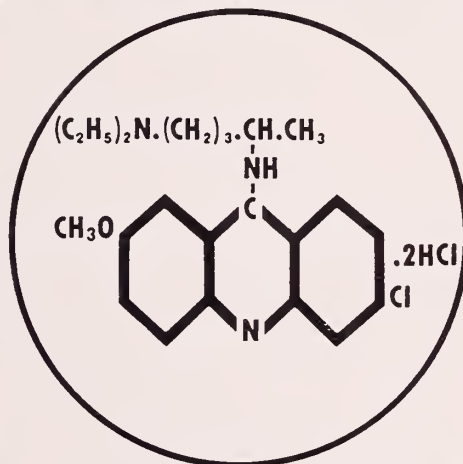
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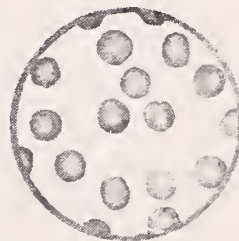
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## EDITORIALS

### PRIVATE PRACTITIONER PREFERRED

The Gallup poll a few years ago attempted to determine the attitude of the American people toward a form of state-controlled medicine, generally spoken of as "socialized medicine".

The question propounded was, in brief, whether a scheme offering full medical care in return for a nominal monthly fee per individual would meet with approbation.

To us, this seemed like asking whether one would say "Yes" if offered a ten dollar bill in exchange for fifty cents.

The answers to Dr. Gallup's question were, to no one's great surprise, overwhelmingly in the affirmative.

The people of Honolulu have recently been asked a question pertaining to the same subject; and their answers would appear to shed some light on how the rank and file may be expected to react when given a choice between securing a service from a private physician for a fee, or receiving the same service from the government for nothing.

The Military Governor of Hawaii ordered that all residents—young, old, rich and poor—submit to vaccination against smallpox, typhoid and paratyphoid fevers. The order was first applied to rural portion of the Island of Oahu, and the immunizations were done by teams of physicians from the Territorial Board of Health and the Army.

Then the order was applied to the City of Honolulu and here the choice was given for immunization by private physician for a fee, or by government physician gratis. It was announced

through the public press that the government-given immunization would start on a certain date and would be administered in the first-aid stations with which the populace had become acquainted as enumeration centers and centers for distribution of gasoline ration tickets.

Before that date, those who desired would be permitted to secure the three typhoid-paratyphoid inoculations and the smallpox vaccination from their private physicians for a fee which the physicians fixed at \$1.00 per treatment or \$4.00 for the immunization series.

Here was a clear-cut proposition involving comparable services by private physicians and government agency. If the person to be vaccinated selected the former it was with the knowledge that his choice committed him to digging down in the jeans for four round dollars. If he elected to receive the same service—which, be it noted, he had not asked for but was ordered to receive from the government—the cost to him would be nothing.

Here is how he decided:

In Honolulu 201,945 persons were immunized. Of this number 89,048, or 44%, elected to receive the service from the government at no cost to them. A total of 112,897, or 56%, elected to pay for this service which they could have received gratis.

How may these results be interpreted?

Are they in fact the popular indorsement of the private practice of medicine—of the old fashioned patient-doctor relationship—they appear to be?

Do they mean, as it would appear, that 56%

of a group of over 200,000 people, the residents of a more or less average American city, voted against an application of state-controlled, or socialized medicine, and paid \$4.00 apiece for the privilege?

Let us examine this more closely:

Was the choice expressed spontaneous and voluntary or were those to be vaccinated high-pressured into private doctors' offices? The public was notified of the immunization requirement by order of the Military Governor, and in the order it was stated that the immunization could be secured either from private physicians or at the aid stations. There was no advertising or other effort on the part of private physicians to secure patronage.

Were the services identical? Insofar as those to be vaccinated knew, the answer is "Yes." It is true that most private physicians in their offices used the intradermal technique for the typhoid-paratyphoid inoculations, but this was not publicized and could have no effect on the determination of choice.

In short, the decision was John Q. Public's own,—but certain significant factors in aiding him to decide must be recognized.

First, the fee fixed by the physicians was reasonable. At least John Q. appeared to have sized it up and decided it was.

Second, John Q. had the money to pay the fee and this without depriving himself and his family of any essential, for in Honolulu now there is employment and good wages for everyone due to the tremendous war effort underway.

Can any definite conclusion be drawn from Honolulu's experience with the immunization program?

How about this:

When John Q. Public has a job and is making an adequate wage, and when the cost of medical services is within his reach, he prefers to buy such care from a physician of his own choosing, and to pay the bill himself.

He would prefer to do this even though the government offers him the same services and says, "Keep your money. Let the taxpayer foot the bill."

L. C. P.

## THE BLACKOUT AND HEALTH

Interpreting statistics of disease incidence in terms of any single factor which affects the lives and habits of the general public is always, needless to say, a risky procedure. In the case of the blackout, however, the temptation to look for such a correlation is all but irresistible.

The blackout has been irksome. It has made restaurants close when their morning employees end their eight-hour shift—for an extra shift to work only three or four hours is not practical in many instances. It has closed theaters by seven, and thereby has closed them throughout the week to workers whose shift ends at five or six o'clock, and completely to the many workers whose week lasts seven days. It has closed bars completely to all except the night-shift men. Together with the curfew, it has kept many people from enjoying one another's society after the daylight hours. It has prevented evening use of libraries. It has been hard on many businesses, as well as on their potential customers. It has worked some degree of hardship on almost every person in the Territory, and as the warmer summer weather approaches it seems likely that it will become even less pleasant than it has been. *But it doesn't promote ill health*—or at any rate, no increase of illness has occurred since the blackout went into effect, notwithstanding the serious overcrowding of nearly all public facilities that has occurred during this period as a result of the rapid increase of population.

	HONOLULU		TERRITORIAL		TOTAL PERCENT DIFF.
	1941	1942	1941	1942	
Diphtheria	26	18	55	33	— 40
GC	505	407	637	482	— 24
Influenza	89	1	1,967	232	*
Leprosy	6	6	17	9	†
Measles	1,436	40	2,641	464	*
G. Measles	128	27	779	104	*
Mumps	31	18	78	117	+ 50
Whooping Cough	37	173	108	278	+ 157
Pneumonia Lobar	32	154	103	205	+ 100
Syphilis	202	46	466	404	— 13
Tetanus	2	4	11	13	†
Pulm. Tbc.	203	42	380	345	— 9
Typhoid	8	79	29	93	†
Varicella	215	67	726	275	— 62
Total	2,985	1,451	8,369	3,145	— 62

\* Epidemic 1940-41

† Percentage not significant

‡ Epidemic, 77 cases, 1942.

Indeed the incidence of contagious diseases during the first five months of 1942 has been materially lower than during the first five months of 1941, with only these exceptions: typhoid fever (of which an epidemic occurred in March 1942), pneumococcus pneumonia, and pertussis. The accompanying chart, condensed from figures supplied by Dr. James Enright of the Bureau of Communicable Diseases of the Territorial Board of Health, shows the details of the comparison between the two periods of time mentioned.

Why pneumonia has increased is not definitely known. Possibly the increase is attributable in part to the recent importation of fresh strains of the organism from the Mainland. Possibly overcrowding of defense workers in the limited housing facilities available for them has been a contributing factor.

But in general it is plain that the blackout cannot be blamed for causing an increase in the incidence of communicable diseases since December 7—for actually a considerable decrease of their incidence has taken place.

It will be interesting to observe what the warmer and more humid weather of the summer and fall months brings.

H. L. A., JR.

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## SEEING IN THE BLACKOUT

Illumination is a factor of primary importance in the performance of our daily tasks. The ability to see in the dark varies from one individual to another. The minimum amount of illumination necessary for clear seeing cannot be stated in definite figures because it depends on the eye and on the task. From the standpoint of the eye, the size of the pupil, the condition of the crystalline lens, the nutrition of the individual with regard to vitamin A, and the integrity of the retina are the principal variables. From the standpoint of the object viewed, its size, its contrast with the surroundings, its brightness, its color, and the duration of the image on the retina are the prime factors affecting visibility.

The eye is able to adapt itself to extreme degrees of lighting, ranging from summer sunlight to faint starlight, a scale of about one hundred million to one. If a person goes from a brightly illuminated room into a dark one, he sees nothing

at first. After a short time he becomes attuned to the darkness and is able to find his way about—his eyes have become *dark adapted* or *scotopic*. If he then returns to the brightly lit room, he is dazzled and is unable to see clearly. Gradually his eyes become reaccustomed to the light—they have become *light adapted* or *photopic*.

In blackout lighting we are hardly able to distinguish objects one from another. Central visual acuity drops to about one-sixtieth of its value as determined under optimal conditions of illumination. This is due to the low contrasts which prevail between objects and their surroundings at low levels of brightness.

As the illumination is diminished, colors manifest a change in their characteristics. Red and orange hues become darker, blue and green hues become brighter. This lack of sensitivity for red in scotopic vision is called Purkinje's phenomenon.

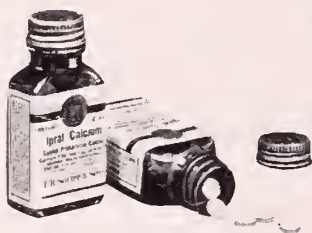
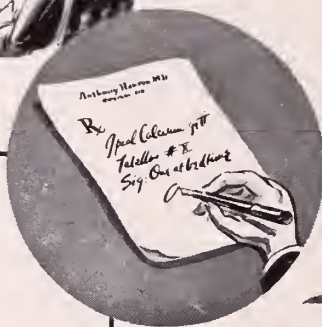
Much confusion exists with regard to the best color of light for blackout lighting. The general impression is that blue shades are superior to other shades. The only advantage of blue covering around an ordinary incandescent lamp is the fact that a very dim light results, which is of course desirable. Blue as a color however is undesirable because it appears brighter in low levels of brightness than other colors even though they all appeared equal at a higher level of brightness. Blue can be seen by peripheral vision over a greater extent of the visual field than any other light or surface of the same brightness. Hence, it can be picked up easier by an enemy aerial observer whose eyes are roving over the entire field below him.

Reddish light has the advantage of greater sharpness of seeing, more rapid dark adaptation and less interference with peripheral vision which a dark adapted observer obtains from such sources as moonlight or starlight. A dimly lighted red area cannot be detected by an aerial observer unless his line of sight happens to pass within a degree or two of it.

In time of war, many of us may have to perform duties during blackout hours. For the sake of our lives and those of others, it is important that we acquaint ourselves with our own capabilities and limitations for seeing in the dark.

W. JOHN HOLMES, M.D.





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# PROGRESS IN INTERNAL MEDICINE

## CLINICAL USES OF THE SULFONAMIDES

Each new member of the sulfonamide group of drugs calls forth a number of articles on its experimental aspects and clinical applications. The total of this literature soon becomes overwhelming in volume and discouraging to the average physician. Yet it is imperative for him to keep up on the subject. Next to the war, it is the most important subject of the decade. The sulfonamides may save as many lives as the united war effort will destroy.

Of the many aspects of sulfonamide therapy, two questions are selected for discussion at this time:

1. What considerations shall influence our choice of drug in the treatment of a given case?
2. What are the reasons for failure in certain cases where the drug is administered carefully according to the usual rules?

### Choice of a Sulfonamide

*How shall we select the proper member of the sulfonamide series for use in a given case?* The principal considerations are (1) the specificity of the drug, (2) its distribution and concentration in the blood and body tissues, and (3) its toxicity. These points are to be evaluated in relationship to the severity of the infection and the patient's general condition (age, other complicating diseases, etc.). The first three points will be considered briefly in relation to the five outstanding members of the group: sulfanilamide, sulfapyridine, sulfathiazole, sulfadiazine and sulfaguanidine.

SULFANILAMIDE, the first member of the series, discovered in 1935, was proclaimed as a cure of puerperal sepsis. Clinical reports have repeatedly confirmed the experimental evidence of its efficacy against infection by members of the streptococcus hemolyticus group of organisms. It has likewise been shown to be clinically efficient in the treatment of chancroid, gonorrheal arthritis, ophthalmia neonatorum, lymphogranuloma venereum, trachoma, and meningococcus and pneumococcus meningitis. It is quickly absorbed, so that high blood levels and other body fluid levels are easily obtained by oral adminis-

tration unless vomiting is a complication. Sulfanilamide powder is probably the drug of choice in local application to surface and cavity wounds where infection is present or suspected (ruptured viscus, war wounds, etc.). The chief objections to this drug are its toxic reactions. General symptoms, cyanosis, and dizziness with depression are outstanding. Vomiting is frequent. Serious blood dyscrasias and skin eruptions also occur.

SULFAPYRIDINE was heralded as a cure for pneumococcus pneumonia. It is unquestionably of value in all types of pneumococcus infection. It is also effective in Friedländer's bacillus pneumonia and is more effective than sulfanilamide against the gonococcus and meningococcus. It is somewhat slowly absorbed but is slowly excreted and relatively high blood levels are readily obtained by mouth administration, provided vomiting is not a complication. The sodium salt is available for intravenous administration. It is relatively highly toxic, producing a high incidence of serious vomiting and not infrequently hematuria and occasional "crystal" anuria.

SULFATHIAZOLE is more effective than either sulfanilamide or sulfapyridine in the treatment of staphylococcic infections. It has approximately the same effectiveness as sulfapyridine against the pneumococcus. It is rapidly absorbed and rapidly excreted and high blood levels are difficult to maintain. It is relatively poorly diffused into meninges, pleura and peritoneum. It is more useful than other members of the group in gonorrheal infections in the male, and in most genito-urinary tract infections. It is perhaps the drug of choice in staphylococcic infections. It is also useful in bacillus coli infections and in infections by certain members of the enteritis group. It is more commonly used in pneumonia and in many other conditions because toxic reactions are less severe. It causes much less nausea and vomiting but may cause renal complications (hematuria and anuria) and, not infrequently, skin eruptions.

SULFADIAZINE, the most recently developed member of the group, is apparently the most generally useful and is certainly the least toxic



of the series. It is reported to be effective against bacillus coli, Friedländer's bacillus, the meningococci, pneumococci, beta hemolytic streptococci, and staphylococci. Its absorption is somewhat slower than sulfathiazole but its excretion is slower and there is little acetylation of the drug, so that high blood levels are readily maintained. It is diffused readily into the serous sacs and meninges. Toxic effects are relatively infrequent but general depression, nausea and vomiting, mild fine skin eruptions, etc., do occur with this drug. The greatest objection to its use is its present high cost.

SULFAGUANIDINE has a limited field of usefulness. It is poorly absorbed and rather high concentrations of the drug are found throughout the intestinal tract after mouth administration. For this reason it has been advocated in intestinal tract infection, in operations involving the bowel and in chronic ulcerative colitis. In this last use it has proved disappointing. Its principal use is in bacillary dysentery.

It is noteworthy that none of the drugs so far discovered have proven useful against any of the common infectious diseases caused by the viruses or by the rickettsia. Their only use in these diseases is as a prophylaxis against, or in the treatment of, complications caused by the organisms which are susceptible to the sulfa drugs.

### Explanation of Failures

*What are the reasons for failure in chemotherapy with the sulfonamides?* This question is answered in a recent article by Bullova and others (Bullova, J. G. M.; Schackman, N. H., and Stats, D.: Chemotherapy of Pneumonias and Immunity Reactions, *Ann. Int. Med.* 16:57 [Jan.] 1942), in relationship to pneumonia. The principles apply equally well to other infections. They are briefly as follows:

1. *Wrong diagnosis.* The infection may be due to an organism not affected by the sulfonamides, or the drug selected may not be sufficiently specific for the organism. One should always seek to discover the etiologic agent at the onset. A change to another member of the series may accomplish results. In cases where the etiologic agent is in doubt, if specific drug administration in sufficient dosage is not accomplishing any clinical improvement within forty-eight to seventy-two hours, it may be wise to stop this form of therapy.

2. *Ineffective concentration.* This may be due to insufficient dosage, poor absorption, conver-

sion (acetylation), rapid excretion or insufficient tissue-penetration. Determination of blood levels of the drug, and perhaps spinal fluid or pleural fluid levels, are indicated when this question arises. Intravenous administration may be necessary to obtain adequate levels in serious infections.

3. *Too many organisms.* If the disease is treated late, or in the case of overwhelming infection, the organisms may be killed or attenuated too slowly to save the patient. Prompt institution of heroic doses of the drug by all routes is indicated under these conditions.

4. *The organisms may become "fast."* This is not frequent but it does occur and much higher concentrations of the drugs than are usually employed may be required.

5. *Antisulfonamide substances; pus.* Pus, serum and other exudates may contain antisulfonamide substances which make chemotherapy ineffective. The large numbers of organisms present in collections of pus make therapy more difficult. The principle of early surgical drainage of abscesses and empyema should always be adhered to lest immunity response and protection become exhausted. In conjunction with drainage and internal administration of the drug, local application or lavage may assist in expediting cure.

6. *Toxic action.* Severe toxic phenomena due to the drug itself may preclude the administration in sufficient dosage or over sufficient period of time to accomplish results. A change to another member of the series may be possible if the toxic effects do not involve such vital organs as bone marrow, liver, etc.

7. *Failure of immunity response.* There may be, in certain patients, a failure of immunity response so that organisms that have not been killed may again become active. Complete studies of the organism and of the patient's immunity response may be required in this instance. Specific antiserum may be required in addition to chemotherapy.

### Summary

In order to accomplish maximum benefit in sulfonamide therapy it is well to know accurately the specific etiological agent with which we are dealing and the full extent of the disease process. Knowing this we should promptly institute the specific drug in full therapeutic dosage and so anticipate only rare consideration of the problems listed above.

S. E. DOOLITTLE, M.D.



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# RECENT ADVANCES IN SURGERY

## VITAMINS IN RELATION TO SURGICAL PRACTICE

A recent review by Paul Starr of Northwestern University Medical School (Starr, P.: The Value of Vitamins in Surgical Practice, *Internat. Abstr. Surg.* 75:309, 1941; in *Surg., Gynec. & Obst.* [April] 1942) considers in detail the various vitamins in relation to surgery. Some of the more important aspects of this problem are summarized herewith.

A most important reorientation in regard to the vitamins is in process. Many still think of them as substances necessary for the prevention of such bizarre diseases as beriberi, pellagra, scurvy, and rickets. Actually they are necessary for normal biological processes; they are required in certain quantities; and deficiency may manifest itself by serious changes in function before changes that produce the clinical pictures of these deficiency diseases take place. There are three orders of magnitude of vitamin requirement; namely, (1) the amount needed for normal processes under normal conditions, (2) the amount needed to maintain normal processes during critical emergencies, and (3) the amount needed to reverse pathological organic changes resulting from deficiency. The surgeon is concerned chiefly with the second of these three.

### The Clinical Diagnosis of Avitaminosis

Indications of latent or "subclinical" avitaminosis must be derived chiefly from a history of (1) *inadequate intake*, which may be due to ignorance, poverty, anorexia, special restricted therapeutic diets, or alcoholism; (2) *inadequate absorption*, which may be due to persistent vomiting, ileitis, ulcerative colitis, postoperative short-circuiting of the gastrointestinal tract, repeated or continuous aspiration of the gastrointestinal contents; and finally (3) *increased requirements*, as in fever, hyperthyroidism, pregnancy, administration of intravenous glucose, or alcoholism.

### Vitamin A

Vitamin A deficiency, unless advanced and severe, is of no practical importance to the surgeon.

### Vitamin B

The vitamin B factors are known chemical substances of which the structure has been determined. They are respiratory enzymes required in normal physiology. Beriberi and pellagra are the end-results of prolonged deficiency from which pathological changes have had time to occur. A sudden increase in the rate of oxidation of carbohydrates such as would occur in a thyroid crisis, a febrile reaction, or an operation, will create a deficiency in vitamin B with acute disturbance of the oxidation processes. The three components of vitamin B known to be respiratory enzymes are thiamin, riboflavin, and niacin (nicotinic acid).

Sydenstricker says that in his experience "every instance of 'waterlogging' occurring in surgical patients receiving intravenous dextrose solution, with or without saline, associated with tachycardia, neuritic pain or tenderness of the extremities, has shown prompt diuresis and relief of pain and tenderness as well as slowing of the heart when adequate doses of thiamin were given. . . .

"The combination of mental confusion or actual delirium and glossitis and stomatitis is seen in patients with complicated surgical conditions who are maintained for considerable periods by *parenteral administration of dextrose* and physiologic saline solutions. All types of obstructive lesions of the gastrointestinal tract, acute cholecystitis, operations upon the stomach or bowel, all varieties of suppurative peritonitis and extensive infected wounds furnish examples of this syndrome. It is seen very often too after emergency operations for urinary obstruction due to prostatism. The factors which seem to be contributory to avitaminosis in these groups are fever, vomiting and the administration of large amounts of dextrose. Fever causes hypermetabolism with increased energy requirements; vomiting prevents the absorption of vitamins from any normal foodstuffs which may be taken. Glucose maintenance, though the only available method of alimentation in many instances, increases the utilization of coenzymes without furnishing any replacement."



In commenting on therapeutic measures Sydenstricker says: "It is probably always wise to add nicotinic acid or sodium nicotinate to dextrose solutions when they are to be used for the prolonged hydration or nourishment of patients unable to swallow or retain food or fluids.

"The amount of nicotinic acid required for the satisfactory treatment of the whole group of acute deficiencies is large. It has been our custom to give at least 600 mgm. daily by mouth or through an indwelling stomach tube and 300 to 400 mgm. by intramuscular or intravenous injection."

### Vitamin C

Recent work by Lanman and Ingalls has shown that the presence of scurvy in guinea pigs interferes with wound healing, and suggested that a vitamin C deficiency might be of importance in clinical surgery.

Wolfer states "The deficient patient should receive 1 gm. of cevitamic acid daily for ten days before any surgical procedure is attempted and this should be continued until wound healing is complete."

A most important direct human experiment on wound healing was carried out by Crandon, Lund, and Dill. One of them placed himself on a diet containing no vitamin C for six months. All other known vitamin factors were provided. An incision through the skin of the back was made after three months. This wound healed normally. A similar wound was made after six months on the diet. This failed to heal normally; biopsy of the wound showed that the tissues at this time lacked intercellular substance. Parenteral vitamin C was then given with good healing, and after ten days a biopsy showed considerable intercellular substance. The great length of time elapsing in this case before vitamin C deficiency produced failure of wound healing may be explained by the maintenance of tissue health and by the adequacy of the other nutritional elements. More important than the eventual production of wound separation was the positive evidence of the immediate production of wound healing by the restoration of vitamin C and the microscopic dem-

onstration of intercellular material coincident with vitamin C administration.

### Vitamin D

Vitamin D is of no practical importance in surgery except where calcium metabolism is specifically altered by the operation or the disease. We need not consider it here.

### Vitamin K

Vitamin K has proved to be a specific substance preventing hemorrhage. Green leafy plant tissue, such as dried alfalfa, is its richest natural source. The clinical application of vitamin K began following the demonstration of low prothrombin levels in certain cases of obstructive jaundice by Quick, Stanley-Brown, and Bancroft. Recently highly water-soluble synthetic substitutes have been given intravenously, and some of these synthetic materials appear to be absorbed directly from the intestine independently of bile.

In addition to the hemorrhagic state associated with obstructive jaundice, other hemorrhagic states, such as hemorrhagic disease of the newborn, that associated with extensive liver damage, and that occasionally occurring in non-tropical sprue and ulcerative colitis, have been treated with vitamin K. The clotting defect in hemophilia does not involve prothrombin deficiency, hence it does not respond to vitamin K administration.

Little is known about the manner in which vitamin K promotes the formation of prothrombin. This function is carried out in the liver and not in the blood.

### Summary

The surgeon should therefore be concerned with (1) the prevention of waterlogging or of mental confusion and stomatitis in febrile, hyperthyroid, or any postoperative cases, as a result of vitamin B deficiency; (2) the prevention of delayed or imperfect wound healing as a result of vitamin C deficiency; and (3) the correction of any abnormality of the clotting mechanism which might be due to vitamin K deficiency.

DOUGLAS B. BELL, M.D.

*stimulation  
of labor*

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# CLINICO-PATHOLOGIC COMMENT

## SHOCK, WITHOUT OR WITH HEMORRHAGE, AND BURNS

### Summary

There is here presented a Laboratory Primer, in words of one syllable, on the determination of blood proteins and hematocrit readings, so that the clinician may better meet shock, hemorrhage and burns and may better understand how the clinical pathologist arrives at the reports he issues.

Very much—probably much too much—has been written or spoken on these subjects recently, so that I must apologize for bringing them up again. However, we Americans here in Hawaii, living constantly under the “Sword of Damocles”—or had I better say the “Katana of the Samurai”?—must keep these matters constantly in mind, and have a clearly formulated plan of action to combat these evils. There cannot be too much rehearsing.

### Clinical Shock

To the clinician the shock patient, without hemorrhage, has suffered concussion, blast, great pain, destruction of tissue or handling of viscera. He is the one who grows pale, his temperature is lowered, his pulse gets more rapid and thinner, his blood pressure falls and falls, his respiration rate rises, there is a pinched look to his face and he is bathed in cold perspiration. It is the picture of impending death. The astute clinician will usually act on these criteria alone, without help from the laboratory, at least for the time being: plasma, saline and glucose, hypertonic saline, adrenal cortex, heat and supine position come to mind. If time permits, whole blood is given. If there be obvious hemorrhage or hidden hemorrhage (peritoneum or pleura), the severity of the picture is augmented—pallor is marked and air hunger becomes prominent.

A badly burned patient is, to the clinician, another shocked patient, with an exquisitely painful, potentially infected wound or wounds. The surgeon is keenly interested in the degree

and extent of the burns, but his main interest is in the patient as a whole. For the time being, he must assuage pain, raise blood pressure, replace lost fluids and proteins and guard against infection and absorption.

### Clinico-pathologic Shock

To the clinical pathologist, any one of these three patients is just a pump—the heart—which no longer has an adequate volume of blood to contract on, since much of it has stagnated in the splanchnic area, or has been lost by massive hemorrhage, or oozed out of the burned surfaces. He is also a set of arteries and veins, but they are not so important as the innumerable capillaries, which have become dilated and of increased permeability, leaking plasma, and thereby producing general and local edema. A high-sounding phrase that is really easy to understand makes the picture clearer: “*Protoplasm is simply a hydrophyllic colloid, which, in the presence of acid, imbibes water.*” If I had my way, I would have these words inscribed on the wall of every operating room. In other words, the muscle cell, inadequately supplied by blood and oxygen, suffers an anoxia and an excess of CO<sub>2</sub> and lactic acid, and therefore takes what water it can get from the leaky capillaries. By the time the water in the tissues become excessive, the capillaries have become highly permeable to the smaller molecules, and the plasma albumins seep out into the tissues. So there begins the vicious circle—for the blood plasma proteins themselves are hydrophyllic and keep water within the vascular tree, and if they are not there in adequate quantity (7.0 grams per 100 cc.), then water and salts that get into or are put into the vascular tree promptly leak out again. Hemorrhage aggravates the picture by reducing the red cell content, the hemoglobin content, and thereby the oxygen-carrying capacity, of the remaining blood. More red cells—transfusions—are logical, as is the administration of oxygen.\*

\* If you have oxygen and no masks for giving it, put a gas mask on the patient, plunge a trocar through it, and hook it on to the supply line. I made this suggestion long ago but was frowned on lest the chemical warfare department might object to the abuse of their gas masks.

To the laboratory, the burn case is similar to the preceding with the additional fact that the burned areas are oozing comparatively large quantities of plasma proteins, water and salt extraneously; these elements also seep into the entire somatic system, until the blood becomes so concentrated as to embarrass circulation by its very viscosity. The ratio of cells to plasma (or serum) rapidly climbs.

It becomes obvious that the rational treatment of shock, hemorrhage and burns includes the replacement of intravascular blood proteins, salts and water—and red cells, if needed. In what case to administer which, and how much, is the question that may face us clinicians and pathologists tonight. How best to keep up capillary blood pressure is still an elusive will o' the wisp.

### Laboratory Guides to Treatment

How can the laboratory help the clinician? During the attack, when a large number of casualties are coming in within a short period of time, probably the only real help the laboratory can give is blood typing and cross-matching whole blood from the central bank, which we assume will be available in large quantities.

Interval red counts are useful, but not very. The same may be said of hemoglobin estimations.

I know of no practical quantitative test for adrenal secretory action, though such a test might be helpful in evaluating adrenal exhaustion as a factor in the falling blood pressure.

Analysis of the salts, anions and cations, is too complicated and time consuming to be of any practical value. The value of potassium and sodium determinations is not yet secure. Alkali reserve, CO<sub>2</sub> combining power, pH determinations and the like have no place in the war.

Then what can the laboratory, out here on the veritable battle front, do to help the surgeon? And what are these procedures? The laboratory has only two little tricks up its sleeve to help the intuitive judgment of the clinician in these conditions, and let it be emphasized that they help, not in the immediate emergency, but afterwards. They are (1) the estimation, at intervals, of the circulating blood proteins, and (2) the determination of the volume of red cells in relation to fluid content of the blood. The latter gets the impressive title of "hematocrit reading".

### Blood Protein Determination

How may the protein content of circulating

blood be determined? One has the choice of working with blood serum, such as is used in the Wassermann reaction, or with blood plasma, the *whole* fluid portion of the blood, including fibrinogen, which is out of the picture in serum. Pure plasma is best secured by the use of heparin as an anticoagulant. How much heparin? We use the American heparin "Liquaemin", deliver 1 drop from a 25 gauge needle into a Wassermann tube, and dry it. It serves to hold a little more than 1 cc. of blood fluid for a prolonged time.

There are at present three practical ways of determining blood proteins:

1. The micro-Kjeldahl method.
2. The falling drop or specific gravity method (pyknometric).
3. The turbidimetric method.

Each has its advantages and disadvantages. The first is highly accurate but slow and tedious. The second is faster, not so accurate, full of personal equations, but at present very well advertised. The third is the least accurate, but quite sufficiently so for clinical purposes. It is very rapid, and that is a consideration if one has fifty or a hundred burn cases, each of which should have one or two or three blood protein determinations each day that he is critically ill.

#### 1. The Micro-Kjeldahl Method

I am sure that the mere mention of the name with its spelling will bring to your nostrils the stink of boiling urine, back in the old "P. Chem. lab." at college. The principle of the micro-Kjeldahl method is to determine the nitrogen content of plasma or serum and, from the nitrogen content, to calculate the total protein content. This, in a little more detail, is done as follows:

A small but accurately measured amount of blood serum is digested with sulphuric acid, hydrogen peroxide and heat. The nitrogen is converted into ammonia. The addition of Nessler's solution develops a yellow-brown color, the depth or concentration of color depending on the amount of ammonia nitrogen present. This is compared in a colorimeter with a prepared standard nitrogen solution (ammonium sulphate) treated in a similar fashion. (Either a visual or a photoelectric colorimeter may be used.) The nonprotein nitrogen, previously determined, is subtracted from the total nitrogen to give serum protein nitrogen. This amount is then multiplied by the factor 6.25 to give the concentration of serum protein.

#### NORMAL VALUES FOR SERUM PROTEIN

Total serum protein 6.5 to 7.5 grams per 100 cc.  
(In Hawaii, normals rarely go above 6.8%)  
Serum albumin 4.6 to 6.7%  
Serum globulin 1.2 to 2.3%



Total plasma protein	6.8 to 7.8 grams per 100 cc.
(Average 7.0)	
Functional water imbalance, serum protein	5.1
Functional water imbalance, plasma protein	5.5
True edema, serum protein	4.5
True edema, plasma protein	5.0

Serum albumin and serum globulin may be determined by "salting out" the globulin, filtering it, and testing the albuminous filtrate as above, subtracting the albumin value from the total protein value to obtain the globulin value. The ratio of globulin to albumin is normally about 1 to 3.3.

## 2. The Specific Gravity Method

The specific gravity of blood serum or blood plasma would be highly uninteresting to the clinician, if it were not for the fact that there is a definite linear relationship between the protein concentration and the specific gravity. Ergo, give me the specific gravity of a serum and I can give you its percentage protein content.

How best to determine specific gravity on minimal amounts of serum or plasma? There are three practical ways, the second having two variants: (1) The old-fashioned pyknometric method of weighing a given and known amount of serum, and comparing its weight to that of an equal volume of water. For this purpose one must have pyknometers or specific gravity bulbs, and an excellent balance. It is not practical for clinical work. (2) The falling drop method, recently widely advertised. It depends on the principle that a measured drop of plasma or serum will fall through a given column of a liquid with which it is immiscible at a rate depending on its specific gravity. One has the choice of two falling drop methods. The column of liquid (oil or hydrocarbons), not mixable with watery solutions, through which the drop of serum or plasma falls, may be stable and of fixed and known specific gravity; or it may be variable so that a control drop of an aqueous solution of known specific gravity is needed. The latter method has been widely advertised and is widely used in Hawaii. It will therefore be considered in some detail first.

The apparatus consists of a tall cylindrical water bath which houses glass tubes containing varying concentrations of a xylene-bromobenzene mixture, and a thermometer. The tubes are marked at 30 cm. and the drop of serum or plasma falling that distance is accurately timed by a stop watch to one-tenth of a second. The falling time of a similar drop of a watery solution of potassium sulphate, of accurately known specific gravity, is also observed. These drops are of identical volume, 0.01 cc., delivered from an accurate pipette, with an ingenious mechanical control. The falling time of the known and unknown drops having been determined, and the temperature observed, the specific gravity is determined by a rather complicated set of

calculations and the use of a large chart or nomogram. Then from a tabulation, or by use of a formula, the grams of protein per hundred cubic centimeters may be calculated. For real accuracy, the pipettes must be scrupulously clean and dry, the hand that delivers the drop must be very steady as it unhurriedly releases it, the eye must be keen to record the passing of the line by the drop, and there must be no variable reaction time between the eye that observes and the finger that presses the stop watch. When the pipettes are clean and one is quite unhurried (no bombing yesterday, today or tomorrow) this manipulation is a pleasantly fascinating experience, somewhat like clocking trotting horses on a dewy morning on a rural Ohio race track.

The alternative method is rather similar but uses in the tubes a mixture of mineral oil and methyl salicylate through which the serum or plasma falls. This has a known specific gravity and is stable. It does not evaporate as does the xylene-bromobenzene mixture. There is no need for the control standard solutions, which likewise evaporate and vary with evaporation. With only temperature and falling time, specific gravity and therefore protein content may be calculated without recourse to a nomogram.

Both of these methods, however, are time-consuming and tedious, and require considerable manual dexterity. Besides, the presence of undue amounts of bile, blood sugar, lipoid matter, cholesterol or laked hemoglobin nullify the results. Bomb explosions nearby do not add to the accuracy.

## 8. The Turbidimetric Method

This method depends on the coagulation of the protein in a known dilution of serum under as nearly as possible constant conditions, to the formation of a turbid suspension which is then compared with standard solutions of serum proteins, similarly treated. For that comparison an electric photocolormeter is most advantageous, for once it is calibrated against known standards, such standards need not be prepared for each determination. An electric photocolormeter is a machine that costs from \$150 to \$300 including tax. I suppose it is classed as a luxury. It consists of (1) a transformer that delivers a constant current, (2) a lamp that delivers a constant beam of light, preferably through a choice of light filters, and (3) a set of standard glass containers to hold known and unknown colored solutions which transmit that color to (4) a photoelectric cell which is more or less strongly activated by more or less colored light and responds by generating more or less current. This current is measured by (5) a sensitive milliammeter which gives the readings. A given concentration of a given colored substance, in solution, always gives the same reading through that cell on that milliammeter. We have recently evolved



the following technique: (it probably is not original with us; there is no time, nowadays, however, to look up literature, and it was simpler to try it out in practice).

Into a clean, dry Wassermann tube, measure, from the upper 0.1 cc. of a dry, clean Kahn pipette—taking care to deliver *exactly* 0.1 cc.—serum or plasma (we prefer serum). Add to this 5.0 cc. of saline and mix by inversion. Transfer *exactly* 1.00 cc. of the saline serum mixture to another Wassermann tube. Into a third tube measure 4.0 cc. of the reagent, which consists of 5% sulphosalicylic acid and 1% anhydrous sodium sulphate, in aqueous solution. This 4.0 cc. of reagent is dumped as rapidly as possible into the 1.0 cc. of serum dilution and the tube is promptly inverted 2 or 3 times. After about five minutes, the tube is again inverted and read in the colorimeter. The reading, by means of the calibration chart, is converted directly into total grams of protein per hundred cubic centimeters. Isn't that easy?

To calibrate an electric colorimeter, take normal human serum and determine its protein concentration by the pycnometric method, or the Kjeldahl method, or the falling drop method. If none of these methods are available, it is probably safe, for practical and clinical purposes, to pool a number of normal bloods and arbitrarily assume the protein content thereof, per hundred cubic centimeters, as 6.8 grams for serum, or 7.0 for plasma. For standardization or calibration: into each of a series of tubes containing respectively 5, 6, 7, 8, 9 and 10 cc. of saline, add, from the upper half only of a Kahn pipette, exactly 0.1 cc. of the predetermined or pooled normal serum, and mix. Then to 1 cc. of each of these mixtures add, under constant conditions, 4 cc. of the sulphosalicylic acid reagent, and make readings after five minutes. The first tube corresponds to 6.8 grams, the last to 3.4 grams. These and their readings are charted on graph or semilogarithmic calibration paper. The presence of undue quantities of bile, sugar, lipoids, cholesterol or laked hemoglobin does *not* interfere with the validity of the results; if traces of bile pigment or hemoglobin are noted in the 0.1 to 5.0 cc. mixture, 1 cc. of this mixture plus 4 cc. of saline are first read in the colorimeter to find a subtraction factor, or better, are used to set the colorimeter to the "null" point.

We have made a number of parallel observations on various sera by the above method and the falling drop method; the usual discrepancy, if any, either way, is about 0.2 per cent; and who is to say which was in error, the falling drop or the turbidimetric method? A tabulation of one such sample comparison shows the narrow margin of discrepancy:

SERUM	GRAMS OF PROTEIN PER CENT	Turbidimetric Falling Drop	DIFF. OF FALLING DROP
1	6.95	7.02	+ 0.07
2	6.6	6.68	+ 0.08
4	6.8	6.71	- 0.09
6	7.1	6.70	- 0.40
9	6.95	7.20	+ 0.25
10	6.8	6.68	- 0.12
11	6.3	6.52	+ 0.22
12	6.45	6.42	+ 0.03
17	6.8	6.75	- 0.05
18	6.8	6.61	- 0.19
19	6.6	6.55	- 0.05
Average			0.14

If there is no electric colorimeter available, a rather crude but reasonably accurate one can be made from a test tube, a piece of wire and a cork stopper as per the diagram. A circle is bent at the lower end of the wire at

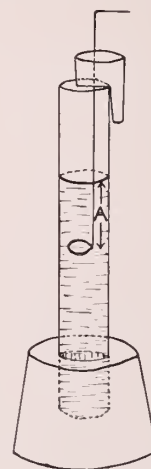


Fig. 1. Home-made turbidimeter.

a right angle and painted black or red—that horrid "jungle red" nail polish serves at least this purpose very well. The wire is inserted in a perforation at the edge of the stopper, so that it may be slid up and down by the handle. The turbid solution is placed in the test tube and, under constant lighting conditions, the wire is pushed down until, with relaxed visual accommodation, the loop becomes invisible. With a millimeter scale, measure the distance from the bottom of the meniscus to the upper side of the loop, "A". After a little practice one becomes adept at nearly duplicating "repeat" readings. Such an instrument could be standardized by the serial dilutions previously mentioned. My own eyes record the six varying standard calibrator concentrations between 15 mm. and 32 mm.; on our sensitive photometer with the color filters the range is only from 17 to 30. This little instrument might not be trustworthy for 0.1 gram variations, but probably is safe for 0.5 fluctuations, and that should be ample for clinical purposes in war times.

If I had fifty or a hundred protein determinations to do each day, during or after a bombing, I certainly would prefer the turbidimetric method—but I certainly would want an assistant to wash and dry the Kahn pipettes!

With the procedure so simple, the clinician need not hesitate to request a protein determination after each administration of plasma, whole blood, or saline, rather than try to calculate the needed dosage of plasma by a complicated formula from a single preliminary determination.

If the clinician should desire a partition of the total proteins into serum albumin and serum globulin, for the sake of completeness, the matter is simple. Of the serum 0.1 cc. is accurately delivered into a Wassermann tube; 0.9 cc. of saline are added, followed by 2.0 cc. of gum ghatti solution—any standard text will explain. Into this 3 cc. are then suddenly dumped 3 cc. of saturated solution of ammonium sulphate, which precipitates out the serum

globulin. After repeated inversions, and after ten minutes, the turbid mixture is read in the colorimeter. Its value in grams, subtracted from total proteins, yields the serum albumin in grams per hundred cubic centimeters. You then have the total serum proteins, serum albumin and serum globulin.

For standardizing or calibrating the colorimeter, one may take a sample of serum and treat it by the "salting out, filtration, digestion and nesslerization process" mentioned in the early part of this effusion to accurately determine its globulin content. For practical purposes, a number of pooled normal sera may be assumed to have a serum globulin content of 1.7 grams per hundred cubic centimeters (the average normal); 0.3, 0.2, 0.1 and 0.5 cc. of this serum are mixed with enough saline to bring the volume to 1.0 cc; 2.0 cc of gum ghatti solution are then added to each tube and mixed, and 3 cc. of saturated solution of ammonium sulphate are suddenly added and mixed, to precipitate the globulin. These standards, which represent 6.8, 3.4, 1.7 and 0.85 grams of globulin per hundred cubic centimeters, are read in the colorimeter and plotted on graph paper.

Total protein, minus serum globulin, equals serum albumin; and normally the ratio of serum globulin to serum albumin is 1:3.3. In nephrosis and the toxemias of infection, pregnancy, scarlet fever and the like, the smaller molecules of serum albumin leak out through the increased permeable capillaries, leaving the large molecules of serum globulin behind in the circulation. In these cases the ratio approaches 1:1 or may be inverted. Once the laboratory has the serum for a total protein, it takes only an additional movement or two to get the serum albumin and serum globulin. Turbidimetrically, the determination of total serum protein, serum globulin and serum albumin, with at least clinical accuracy, is as easy as shooting fish. It behooves the clinician to use it about as often as he does the Wassermann reaction and the white and differential count; he will find this tool, after he learns to use it, as useful as the other two.

### Red Cell Volume of Blood

The simplest method I know for making this determination is a slight modification of the

method used by Dr. Christopher Hamre (*Am. J. Dis. Child.* 60:22 [July] 1940) in making his hematological investigations of Hawaiian normals.

Rather heavy-walled glass tubing of about 2 mm. inside diameter is cut to lengths of 11.3 cm., because that size fits the usual centrifuge tubes. The cut ends are burnished with fine emery paper rather than flamed, to keep the inside diameter constant. Rubber bands for sealing these tubes are made by cutting strips, 1 cm. wide and 24 cm. long, from old inner tubes. The ends are cemented together with rubber cement, overlapping slightly over 1 cm. The joint is reinforced with one staple from the usual office stapling machine.

A saturated solution of sodium citrate is made; it keeps well. For use, a small quantity of half-saturated solution for each day's use is made. The half-saturated solution is drawn into the tube, and expelled. Blood is then drawn, from the finger, or from the sample taken for serum proteins, nearly filling the tube, which is then sealed by the rubber band, the lower end of the hematocrit tube being placed on the rubber overlap. This is then placed in the centrifuge and spun at a given high speed, a given period of time. Only experiment will determine what speed and time will give packing of cells that cannot appreciably be increased by more prolonged centrifugation. With a millimeter rule, the lengths of the entire column of blood and of the column of red cells are measured, and the ratio reported in percentage. The usual normal values of red cell volume are given as follows:

Females: 39% to 43%; average 41%.

Males: 42% to 50%; average 46%.

(That's why a woman is a better plasma donor.)

Such determinations may be of great value to the clinician, particularly if repeated at intervals, in cases of burns and in hemorrhage, particularly in invisible, progressive hemorrhage.

### Conclusion

Shock, hemorrhage and burns are primarily conditions which the clinician must combat with clinical judgment, but he does have these two laboratory aids to assist him.

E. A. FENNEL, M.D.

*RE.*

## QUININE PRESCRIPTIONS

Under the terms of General Preference Order No. M-131 no person is entitled to sell, transfer, deliver, or purchase any quinine except for use as an anti-malarial agent or for use as an ingredient of quinine & urea hydrochloride, U. S. P. for hypodermic use . . .

Further: . . . All purchasers of quinine . . . (except ultimate consumers) . . . must sign a certificate (reproduced below)—and if he uses the quinine other than as an anti-malarial agent or as an ingredient of quinine & urea hydrochloride, U. S. P. for hypodermic use, severe penalties may be imposed upon him for a violation of General Preference Order No. M-131.

**Certificate Under General Preference Order  
No. M-131**

I hereby certify that the quinine ordered hereby is for use as (1) an anti-malarial agent or (2) an ingredient of quinine and hydrochloride (U.S.P.) for hypodermic use, and will not be sold, transferred or delivered by me for any other purpose. This certificate is made in accordance with the terms of General Preference Order No. M-131 with which I am familiar.

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# EMERGENCY MEDICAL SERVICES

(FORMERLY MEDICAL PREPAREDNESS)

The outstanding item of interest in defense activities since the last report was the alert, which lasted for nineteen days and was terminated only by the good news of the battle of Midway. In general the alert was taken seriously by the personnel, many of them becoming somewhat tense and jittery because of its long duration. There was also a tendency for people to question the validity of the alert because it was not applied to all defense units. It was a good lesson, because even the doubters now realize that there was a very real reason for the alert and it is felt that there will be less tendency for people to question similar orders in the future.

There have been three changes in the duties of persons connected with this organization. Dr. M. F. Haralson resigned his position as Territorial Administrator of Emergency Medical and Related Services on May 18 because of the pressure of his manifold duties as Territorial Commissioner of Health, and Dr. Arnold has been appointed to succeed him as Territorial Medical Director of the Office of Civilian Defense. Dr. Pinkerton has been appointed Territorial Director of Blood and Plasma Banks. His duties will include the direction and control of all Territorial blood and plasma banks under the Territorial Office of Civilian Defense, and he will advise and assist individual banks in their problems of supply, production and distribution. Mrs. Akana has been appointed Territorial Supervisor of Nursing Activities. These appointments should serve better to correlate and coordinate the activities on all the islands, although, for obvious reasons, individual islands will have to assume considerable initiative and responsibility.

The first consignment of "bunny" gas masks for very small children was issued to families living within the evacuation zone. Production and issue of these masks have been of necessity slow and the demand for them is so great that more than mild impatience has been exhibited by parents unsuccessful in obtaining them. Only the aid stations at Pohukaina, Kalihi-Kai and Jefferson were concerned in this issue. When more become available more sections of the city will be supplied through their respective stations.

If circumstances demand it, apparatus for taking blood and making transfusions, as well as for giving plasma, will be placed in all aid stations, thus making possible the immediate treatment of shocked and bled out patients without the danger of delay occasioned by transportation. The blood bank is also arranging to send blood donors to the aid stations and hospitals under emergency circumstances.

Ambulance transportation of invalids living in the evacuation zones is being arranged by means of questionnaires sent to persons reported by the block wardens as being in need of such transportation.

Island medical directors were called to Honolulu for a meeting on May 15 for instructions regarding the distribution of medical supplies to outside islands. There being no lists from civilian sources of hospital supplies requisite for such purposes, Col. King has furnished the Office of Civilian Defense with army lists to be used as a basis for compiling requisitions. It appears from the requests already received that doctors are not recognizing the fact that these hospitals are *emergency* hospitals and that it is not contemplated to include items other than those essential to saving life or preventing unnecessary suffering. Col. King has repeatedly laid down the dictum that, in considering whether a given item is essential or not, the question be asked, "Might it save a life?" It would be futile to attempt to set up these emergency units on the same scale as permanent hospitals. If, in making requisitions, these principles are borne in mind, more efficient and speedy distribution of supplies and equipment will result.

Forty-nine large and 105 small medical and surgical kits for evacuation centers have been assembled and distributed. The large cases are equivalent to a doctor's office equipment on a small scale, and the small cases contain what a doctor might carry in his bag. These will be available to doctors and nurses detailed to caring for sick or injured evacuees.

A training course in the care of casualties was instituted for lay groups on June 9 and the

response has been excellent. Classes are limited to 20 students, and approximately twenty-four classes are now in session, some during the day and some at night.

A large shipment of medical supplies has arrived from the mainland. These supplies will be distributed as rapidly as they are unpacked, assembled and repacked.

H. L. ARNOLD, M.D.

## HOSPITAL FACILITIES FOR OAHU

The recent changes in the hospitals of the community, both for the services and the civilian population, plus the addition of many new doctors, warrants a brief outline to bring up-to-date the facilities available and the distribution of patients. A list of hospitals is given below, with their function and capacity, as well as the group of people primarily served. All of these civilian hospitals will permit qualified physicians not on their staffs to admit patients in any emergency and treat them there. This agreement will terminate with the war.

### Civilian Hospitals

1. *Queen's Hospital*. This is a general hospital of 350 beds, 300 for adults, 50 for infants, very thoroughly equipped and staffed, and almost any type of case can be adequately cared for in this institution. It is better equipped for brain surgery than any other hospital. Chest surgery can well be done here also.

2. *St. Francis Hospital*. This is primarily a general hospital, with 90 beds for adults and 16 bassinets, making a total of 106 beds. A few extra can be added in an emergency. There are facilities for obstetrics, surgery, general medicine, with laboratory and x-ray equipment, without specialization.

3. *Japanese Hospital*. This hospital is Provisional General Hospital #3, under Army control. The civilian section is a general hospital with 174 beds for adults and 20 for babies. It has the usual facilities without specialization. There is an open staff at present on the civilian section, and civilian doctors may care for their patients in the customary manner.

4. *Kapiolani Hospital*. This is limited to obstetrics and gynecology, with 70 beds for adults and 70 bassinets. A few extra beds can be set up. War casualties will not be admitted.

5. *Children's Hospital*. As its name implies, will be used for children, with 14 years as the upper age limit. There are 104 beds available, some adult size, some cribs and others bassinets.

6. *Shriners' Hospital*. This is a private hospital for the treatment of crippled children, with 28 bed capacity. It is a small surgical hospital.

7. *Leahi Home*. This is primarily a hospital for the treatment of tuberculosis. There are available 40 beds for war casualties. The equipment and the staff are specially suited to the treatment of serious chest wounds. It is advised that this type of case will receive better attention there than in any other local hospital. It is as well, but no better, qualified as other hospitals for other types of surgery. The institution has 500 beds, including 9 bassinets.

8. *Kaneohe Territorial Hospital*. This is a hospital of the Territory of Hawaii, for the care of nervous and mental diseases, with about 1000 bed capacity. Patients are admitted to it in the customary procedure of this type of institution.

### Office of Civilian Defense Hospitals

1. *Sacred Heart Academy Hospital*. This has a maximum capacity of about 400 beds, and is reasonably equipped and staffed to care for ordinary medical and surgical cases.

2. *Wahiawa Emergency Hospital*. This has a maximum capacity of about 350 beds and will be able to furnish general medical and surgical care. It has an obstetrical department.

3. *Shriners' Hospital Annex*. There is an annex of 100 beds which will be opened for service only in the event of need arising for it. The annex is an O.C.D. hospital.

4. *Manoa Valley Hospital*. This will not be opened until or unless the situation demands it. Its facilities and equipment are distinctly of an emergency character. Space for 150 patients could be provided and they can get ordinary surgery if needed.

### Plantation Hospitals

*Plantation Hospitals*. There are five plantation hospitals, all equipped with operating rooms, x-ray and laboratory facilities, and for obstetrics. All of them have extra beds on hand, which can be made available for emergency treatment of casualties. The plantation hospitals have been asked to give in writing their permission for any

doctor to join their staffs in case such war casualties occur. These hospitals and their capacities are namely:

NAME	BEDS, ADULT	BEDS, BABIES	TOTAL BEDS
1. Aiea	35	8	43
2. Ewa	37	8	45
3. Kahuku	24	12	36
4. Waialua	37	3	40
5. Waipahu	48	5	53

These hospitals have not yet all agreed to an open staff in case of war casualties.

*Dispensary, Waimanalo and Waianae.* There is a dispensary at Waianae and one at Waimanalo for use by the plantation personnel. Hospital facilities are scarcely available, but these installations should be kept in mind as being of possible use in an emergency.

### Private Hospitals

1. *Wahiawa Hospital.* Dr. Mack at Wahiawa has a small private hospital, which contains a small operating room and some x-ray equipment. There are beds for eight adults, one child and three infants.

2. *Uyehara Hospital,* in Waipahu, has been closed as such, but is an Aid Station.

3. *The Tamura Hospital,* in Waipahu, is privately owned by Dr. Tamura, and has 7 beds for adults and 5 bassinets, with a small operating room.

### Military Hospitals

In case of emergency, military hospitals are available for any civilians. When admitted, such patients are under control and treatment of the Army doctors at the hospital. In the event that a civilian doctor finds it necessary to send a patient to a military hospital, that doctor should confer with the officer of the hospital concerned, and the patient will be admitted. However, the Army doctors assume control of the patient. Should the civilian doctor desire to consult, follow the case or operate on the patient, such details must be arranged with the hospital commanding officer in each instance. These courtesies are freely extended in the case of private civilian patients unless there are special reasons for not so doing.

1. *North Sector General Hospital.* This, like Tripler, is entirely a military hospital, a general

hospital with facilities for all types of surgery. The hospital is located at Schofield Barracks, and was formerly called the Station Hospital. Women and children are admitted in case of emergency.

2. *Tripler General Hospital.* This is a general hospital of the Army. The surgical section is at the Farrington School Annex. Women and children are admitted in case of emergency.

3. *Hickam Field Hospital.* This is a military hospital located at Hickam Field.

4. *Provisional General Hospital No. 1,* at Kamehameha School. This is primarily a hospital for the treatment of women and children at present, and obstetrics, but will shortly be prepared to do general surgery. The staff is entirely military.

5. *Provisional General Hospital No. 2,* at St. Louis College. This is a general hospital with appropriate facilities, staff and equipment, for the treatment of any type of casualties. The staff is entirely Army. There is also space for women and children for both medical and surgical care.

6. *Provisional General Hospital No. 3,* at the Japanese Hospital. The entire hospital is under military control. The Army section is primarily for the care of contagious diseases.

7. *Provisional General Hospital No. 4,* at Kaneohe Territorial Hospital. The Army portion serves as a general hospital for all types of military needs.

### Naval Hospitals

1. *Naval Hospital, Pearl Harbor, T. H.* A general hospital. Equipped and staffed for general medical and surgical work. It has an excellent Neuro-surgical Department. Women and children will be admitted in emergency as war casualties, but facilities for their treatment are limited. Should women and children be admitted in emergency, their early transfer to other hospitals will be necessary.

2. *Naval Mobile Hospital No. 2, Aiea, T. H.* A general hospital. Equipped and staffed for general medical and surgical work. Women and children will be admitted in emergency as war casualties, but facilities for their treatment are limited. Should women and children be admitted in emergency, their early transfer to other hospitals will be necessary.

H. L. ARNOLD, M.D.



## HONOLULU BLOOD AND PLASMA BANK Production

On June 12, 1942, the Honolulu Blood and Plasma Bank had on hand 5,377 doses of plasma, 250 cc. each. Of these 4,698 were fluid, 289 frozen, and 390 awaiting culture. Twenty 500 cc. lots of typed seronegative whole blood, not over two days old, are kept on hand at the central bank at Queen's Hospital at all times.

During the month of May twenty-four physicians borrowed eighteen 250 cc. doses of plasma and fifteen 500 cc. doses of whole blood for the treatment of private patients. Repayment is made by friends of the patient on the basis of one donor per dose of blood, and two donors per dose of plasma. When complete repayment is made, no charge is made against the patient.

Approximately 1,000 doses were dispensed, most of it to the Navy, following the attack on December 7. Since that day, we estimate that over 10,000 donors have given blood. The approximate yield from these should have been nearly 8,000 doses of plasma, but unfortunately the rate of contamination was high during the two weeks immediately following the 7th, and for the lack of filters we have been unable to salvage as much as we had hoped.

The rate of contamination at the central blood bank from the latter part of December to March 31 was 1.25 per cent; for the month of April it was 3.8 per cent, and in May it was 0. per cent. This record compares very favorably with reports from blood banks elsewhere.

Under present conditions our average cost per unit of plasma is approximately \$9.87.

The branch blood banks are producing only on a minimum scale, just enough to insure constant practice against the time they may be called upon again to produce at maximum capacity.

A deep freezing unit, capable of freezing 240 units of 250 cc. each in a maximum time of three hours, has been installed at the central bank.

Storage facilities have been made available in 19 hospitals, stores and ice houses in the city, and in 5 such places in the country districts. Plans are now in progress to provide storage facilities throughout the city which would not be affected by damage to the central electric power plant. An auxiliary generator has been installed at Queen's Hospital to supply power for the storage facilities at the central blood bank.

Our statistical studies are by no means complete, but for the period December 24, 1941 to

May 30, 1942 there were 4,000 men donors and 1,587 women, divided racially as follows:

RACE	PER CENT
Caucasian .....	51.
Japanese .....	24.25
Hawaiian and Part-Hawaiian.....	8.5
Filipino .....	5.75
Portuguese .....	4.
Chinese .....	2.5
Puerto Rican .....	1.
Korean .....	1.
All others .....	2.

## Organization

Just about one year ago the Honolulu Blood and Plasma Bank began its career, sponsored by the Public Health Committee of the Chamber of Commerce, with but three workers on a part-time or hourly basis. Now, under the Office of Civilian Defense, it has fifteen full-time and nine part-time workers. Three of these, including the director, are volunteers.

### *Personnel organization*

DEPARTMENT	PART-TIME EMPLOYEES	FULL-TIME EMPLOYEES
Bleeding room	2	4
Plasma processing	0	3
Plasma storage	0	1
Hematology & blood grouping	2	3
Records & administration	5	1
Filtering & biological lab.	0	3

The bleeding room personnel is composed of two part-time physicians, three full-time registered nurses and one full-time scrub nurse. Dr. John W. Devereux, in charge of the bleeding room, is employed on an hourly basis and has full responsibility for the physical welfare of the donors. He also contacts all donors with positive or doubtful serologic tests to advise them of their condition and reports these to the proper authorities. At the present time such donors represent a little over one-half of one percent of the total. Dr. Devereux is also ex-officio member of the technical advisory committee.

Dr. William S. Ito is employed on a monthly salary and works an average of 14 hours a week. The nurses assist the doctors with the bleedings and it is their responsibility to see that bleeding sets and other equipment are on hand for any emergency. They are responsible for the storage of whole blood and keeping the records. The scrub-up nurse, as her name implies, cleans the used equipment and prepares the next day's equipment for sterilization.

Mrs. Hazel H. Bond is in charge of all administrative details and is secretary to the director on all blood bank activities. Under her direct supervision are five employees. Her duties require an average of 60 hours a week.

Mrs. Bernice M. Hemphill is in charge of the technical work of the central blood bank. This includes supervision of blood grouping, plasma drawing, freezing and storage. Her work also requires approximately 60 hours a week. She supervises eight employees. The employees in the blood grouping department are responsible for the hemoglobin and blood group determinations on an average of 200 people a day. The part-time employees assist in the washing of tubes, slides and other glassware in preparation for the next day's work. The plasma drawing, freezing and storage departments have functions as their names indicate. Our plasma, both liquid and frozen, is stored in 24 different places on the Island of Oahu.

The filtering department is under the supervision of a volunteer, Mrs. Ruth Herter, whose services are most highly valued. This department reclaims contaminated plasma.

The cultural work is being done at the laboratory of the Territorial Board of Health by Dr. Witlin.

The motor corps and the canteen service of the American Red Cross deserve much praise for their work in the blood bank. Two motor corps workers and one canteen worker are in

attendance during all bleeding hours at the central blood bank, taking charge of the donors after the bleeding and serving them refreshments and stimulants. These services are much appreciated by both the donors and the blood bank. The American Red Cross also reimburses the branch blood banks for cost of their canteen service.

Under OCD regulations all full-time employees are on a forty-eight hour basis, i.e., 8 to 5 daily, six days a week.

A new building, 40 x 80', is being constructed on the grounds of Queen's Hospital to house all departments of the blood bank. It is expected to be ready for occupancy about the first week of July.

The Honolulu Blood and Plasma Bank has succeeded in spite of many difficulties. Long hours of work in hot, poorly ventilated and crowded quarters, provided in temporary tumble-down structures scattered widely from the waterfront to various parts of the Queen's Hospital and its grounds, have worked a definite hardship on a very fine group of patriotic and interested workers. To all of them goes the credit for the success we have so far enjoyed.

F. J. PINKERTON, M.D.



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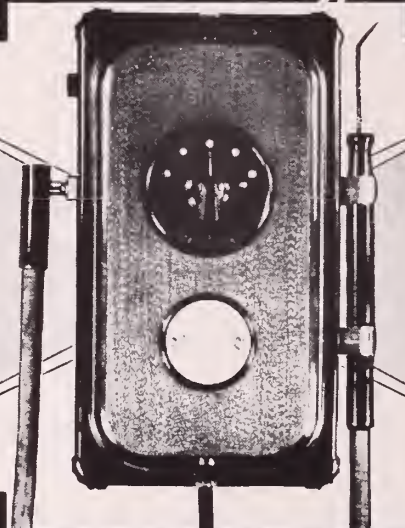
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A. L. CRAIG, M.D.



PRESIDENT, 1941 - 1942

## FIFTY-SECOND ANNUAL MEETING HAWAII TERRITORIAL MEDICAL ASSOCIATION

### BUSINESS SESSION

MABEL L. SMYTH BUILDING — HONOLULU, HAWAII

FRIDAY, JUNE 5, 1942

A full scientific session and meetings of the membership and House of Delegates were planned as per program given below. Upon advice from the naval authorities that all medical officers would be continued on the alert due to the developments around Midway Island, and upon their suggestion, it was considered advisable to postpone the scientific sessions but to proceed with the business meetings since outside island delegates were already present in Honolulu.

### PROGRAM

#### SATURDAY, JUNE 6

BUSINESS SESSION—Members and House of Delegates.

PANEL—*Disposition of War Casualties.* Chairman—Lt. Comdr. Albert T. Walker, M.C., USN.

- 1—*Shock*—Major Chas. A. Young, M.C., USN.  
S. E. Doolittle, M.D.
- 2—*Wounds, General*—Lt. Col. August M. Spittler, M.C., USA. Discussant—Comdr. T. W. Downes, M.C., USNR.
- 3—*Abdominal Wounds*—Lt. Col. Leonard D. Heaton, M.C., USA. Discussant—James R. Judd, M.D.
- 4—*Chest Wounds*—Joseph E. Strode, M.D. Discussant—H. H. Walker, M.D.
- 5—*Orthopedic Wounds*—Lt. J. D. MacPherson, M.C., USNR. Discussant—Col. Robert C. Robertson, M.C., USA.
- 6—*Head Injuries*—Ralph B. Cloward, M.D. Discussant—Lt. H. Hamlin, M.C., USNR.
- 7—*Blast Injuries*—Lt. Comdr. Joseph Palma, M.C., USNR. Discussant—Robert Perlstein, M.D.
- 8—*Burns*—Lt. Comdr. P. E. Spangler, M.C., USNR. Discussant—F. J. Halford, M.D.

#### SUNDAY, JUNE 7

BREAKFAST MEETING—Council and House of Delegates—Pacific Club.

*Non-Veneral Syphilis.*—Lt. Comdr. E. H. Hudson, M.C., USNR.

*Observation of a Recent Epidemic of Typhoid Fever.*—Capt. Robert J. Hoagland, M.C., USNR.

*Heart Disease in Beriberi.*—Lt. Comdr. A. C. McKenney, M.C., USNR.

*Psychiatric Problems in Wartime Hawaii.*—E. E. McNiel, M.D.

BUFFET LUNCHEON AND ENTERTAINMENT (Wives invited; Kalua pig and Hawaiian entertainment planned).

*Note:* Medical Officers of the services are invited as guests to the scientific sessions and to the luncheon and entertainment Sunday afternoon.

Registration fee \$5.00 for all members of the Association.

# MINUTES OF MEETING COUNCIL

Friday, June 5, 1942, 4:30 p.m.

**Present:** Dr. A. L. Craig, presiding; Drs. R. O. Brown, D. B. Bell, F. J. Pinkerton, Paul Withington, L. G. Phillips. Also present were: H. L. Arnold Jr., editor; Fred Lam; H. M. Patterson, Hawaii; Webster Boyden, Kauai; H. H. Seiler, Maui; Thomas Keay, Hawaii; G. C. Milnor, H. C. Gotshalk, J. E. Strode, N. M. Benyas, H. T. Rothwell, T. A. Casey, and P. H. Liljestrand.

**Purpose:** This meeting was called, in accordance with the by-laws, for the day preceding the annual meeting.

**Finances:** The Treasurer presented a report for the year which was voted to be accepted.

Action on the 1942-1943 budget was deferred until consideration could be given to the individual items slated for discussion.

**Hawaii Medical Journal:** Dr. Arnold, editor, gave a report of costs as follows:

Cost of JOURNAL, per issue.....	\$500.00
Income from ads, per issue.....	300.00
Deficit, per issue.....	200.00
Former cost of mimeographed bulletin, and cost of annual meeting proceedings, pro-rated, per issue	163.00
Actual deficit per issue.....	37.00
Actual cost of JOURNAL for the year, over former practices .....	\$222.00

He stated that the January (War) issue had been very costly and was responsible for not making a better showing. He made the following recommendations:

- that the JOURNAL be continued bi-monthly;
- that each member be assessed \$2.00 as subscription to the journal to help with its cost.

**Action:** It was voted to recommend to the House of Delegates that the HAWAII MEDICAL JOURNAL be continued and that each member be assessed \$2.00 per year as subscription to the journal, and It was voted that the same editorial staff be continued.

**Library:** The Secretary drew attention to the stipulation in the by-laws that an appropriation be made yearly to the medical library, and reviewed attempts in former meetings of the Council to levy an assessment for this.

**Action:** It was voted to recommend to the House of Delegates that a sum not to exceed \$500.00 be made available for library purposes, pending a report by the Library Committee of the Honolulu County Medical Society of its needs, and a statement that the library will be made available to all members of the Territorial Association.

**Budget 1942-1943:** With additions voted as above, the budget for the year was accepted as follows:

Balance on hand.....	\$1,373.11
Membership dues expected 272 x 15.....	4,080.00
JOURNAL: Advertisement 1,800 .....	
Subscriptions 100 .....	1,900.00
Subscription—\$2.00 per member.....	544.00
Disbursements:	7,897.11
Rental .....	300.00
Salaries .....	1,800.00
Miscellaneous .....	100.00
Postage .....	50.00
President's trip .....	100.00
JOURNAL .....	3,000.00
Mimeo .....	25.00
Annual Meeting .....	250.00
Appropriation to Library.....	500.00
	6,125.00
	\$1,772.11

Respectfully submitted,  
R. O. BROWN, M.D.  
Secretary

# MINUTES OF MEETING HOUSE OF DELEGATES

Friday, June 5, 1942, 5:00 p.m.

Mabel Smyth Building

**Call:** In view of the fact that the general membership meetings scheduled for June 6th and 7th had been called off, and in view of the fact that all but one of the outside island delegates who had come to Honolulu were present, it was agreed to hold the House of Delegates meeting at this time, and the President, Dr. Craig, called the meeting to order.

**Roll Call:** The following members were present:

President—A. L. Craig  
Secretary—R. O. Brown  
Treasurer—Douglas B. Bell  
Vice-President: Fred K. Lam, H. M. Patterson, A. W. Boyden.  
Councillors: F. J. Pinkerton, Paul Withington, L. G. Phillips.  
Delegates:  
Honolulu—H. M. Johnson, G. C. Milnor, H. C. Gotshalk, J. E. Strode, N. M. Benyas, H. T. Rothwell, O. Lee Schattenburg.  
Maui—H. H. Seiler  
Hawaii—Thomas Keay

**Reports:** All reports from component societies as to membership and activities, as required, had been received and placed on file

The following reports were read and voted to be accepted and placed on file:

- Reports of component societies—Hawaii County (Exhibit A), Honolulu County (Exhibit B), Kauai County (Exhibit C), Maui County (Exhibit D).
- Report of the Council (Exhibit E)  
*Discussion:* Dr. Pinkerton asked for a clarification in regard to the ruling, "but those doing private practice on a part-time basis will be required to pay full dues." Upon vote this was clarified to apply to those deriving income from the private practice of medicine aside from their salary for military service.
- Report of the Secretary (Exhibit F)
- Report of the Treasurer (Exhibit G)
- Report of Committee:  
a. Cancer Committee (Exhibit H)  
*Action:* It was voted to accept the report and to make recommendations to the Board of Trustees of the Queen's Hospital as suggested in the report.  
*Action:* It was voted that the reports of other committees be publicized in the journal and that the reading of them be dispensed with at this meeting.  
These reports are included herein as exhibits, as follows:  
b. Psychiatric Committee (Exhibit I)

**Continuation of Meeting:** It was the consensus that the meeting proceed with the business before the House of Delegates rather than adjourn as is customary to the next day.

**Hawaii Medical Journal:** The recommendation of the Council that the JOURNAL be continued and that each member of the Association be assessed \$2.00 per year as subscription to the journal was discussed.

**Action:** It was voted that the recommendation of the Council be accepted.

**Post Graduate Program:** It was agreed that consideration for a territorial-wide post graduate program be postponed for the duration.

**Library Assessment:** The recommendation of the Council that a sum not to exceed \$500.00 be made available for library purposes, pending a report by the Library Committee of the Honolulu County Medical Society of its needs, and that the library be made available to all members of the Territorial Association was discussed.

A motion was offered that an assessment per member be levied to raise the \$500.00 recommended for library purposes.

Much of the objection advanced by delegates from the outside islands to such an assessment was allayed by the promise to supply each island with a complete catalogue of the books and journals contained in the library, and with an Index Medicus, starting with the current year at least, and possibly back numbers.

**Action:** It was voted that the assessment per member for the year be \$20.00 instead of \$15 as previously, this to include subscription price to the journal and the free use of the library by mail.

**Action:** It was voted that \$500.00 be made available to the Library Committee.

**Scientific Session:** No agreement was reached as to the re-scheduling of the scientific program; it was left to the discretion of the Councillors in Honolulu.

**Annual Meeting 1943:** It was agreed to defer consideration of this under the emergency conditions and to leave this to the discretion of the Council.

#### Election of Officers

##### President:

Dr. Milnor nominated Dr. D. B. Bell.  
Dr. Gotshalk nominated Dr. R. O. Brown.  
Dr. Brown nominated Dr. J. Palma.  
Dr. Lam moved that nominations be closed. Seconded by Dr. Benyas.  
Ballots cast. Dr. R. O. Brown elected President for the year 1942-1943.

##### Secretary:

Dr. Brown nominated Dr. D. B. Bell.  
Dr. Patterson moved that nominations be closed.  
The Secretary was instructed to cast a unanimous ballot for Dr. D. B. BELL for secretary.

##### Treasurer:

Dr. Lam nominated Dr. N. M. Benyas.  
Dr. Brown moved that nominations be closed. The Secretary was instructed to cast a unanimous ballot for Dr. N. M. BENYAS for Treasurer.

##### Councillors:

Dr. Benyas nominated Dr. Pinkerton for re-election.  
Dr. Lam nominated Dr. Withington for re-election.  
Dr. Gotshalk moved, seconded by Dr. Benyas, that nominations be closed and that the Secretary cast a unanimous ballot for Drs. F. J. PINKERTON and PAUL WITHINGTON to serve as councillors for three years.

Adjourned at 6:45 p.m.

Respectfully submitted,

R. O. BROWN, M.D., Secretary

#### Report of the Hawaii County Medical Society

(Exhibit A)

E. TOMPKINS, M.D.  
Secretary

The Hawaii County Medical Society has been very active during the past fiscal year and has held meetings every month except March 1942.

Attendance at the meetings had been good, but it is very noticeable that since the outbreak of war, our attendance has been much better. Many of the men have been present at the majority of the meetings even though having

to travel long distances and in spite of blackout conditions and military restrictions.

Scientific papers presented during the year were as follows:

1. Exanthem Subitum.....Dr. T. Yoshina
2. Local Foods and Racial Dietary Habits.....  
Mrs. Marjorie Abel
3. Recent Medical Trends on the Mainland.....  
Dr. William Bergin
4. Semi-annual meeting at Kona Inn, September 6, 1941..
5. Ollier's Disease .....Dr. R. Eklund
6. Bacilli Coli Septicemia; Enchondroma of the  
Middle Finger (report of cases).....Dr. C. L. Carter
7. Hypofunction of the Ovary.....Dr. A. I. Shimamura

In addition to this, the series of lectures presented to us by Dr. McKhann, Dr. Blankenhorn and Dr. Compere were greatly appreciated and well attended.

In May 1941 the Society began preparations for an emergency as occurred December 7th and had accomplished a great deal through the activity of a Preparedness Committee. This committee has functioned very actively and has laid a great deal of ground work for civilian medical defense. It was recently disbanded with the appointment of one of our members as medical defense director by the governor.

In August 1941 the question of the control of venereal disease was put under study and worked out with the Army authorities. They were successful in drawing up a procedure and set of rules which have met with the approval of the military authorities and have accomplished a great deal in controlling and properly treating all known cases of infectious venereal disease.

The Society was fortunate in having a Councillor present in Honolulu at the time of the December 7 attack, and he was fortunate enough to have the opportunity to do a great deal of work with Dr. Moorhead and could return to us giving a good deal of Dr. Moorhead's methods of treatment and procedures as he saw carried out at that time. This was a great help to the Society in knowing with what they were faced. Another member of the Medical Preparedness Committee, at a later date, visited Honolulu with the express purpose of getting data and information as to the best way to prepare our hospitals for such an emergency. In this way a great deal of knowledge has been obtained so that we are better able to meet any emergency situation should it arise.

At the present time the members of the medical society are cooperating with the Board of Health in forwarding the mass immunization, and the program has been progressing very satisfactory.

Throughout the year the Society's association with the military medical corps has been very congenial and friendly. A large number of these men have been attending the medical meetings in ever increasing numbers.

#### Report of the Honolulu County Medical Society

(Exhibit B)

N. M. BENYAS, M.D.  
Corresponding Secretary

The past year has been a very active one. Up until December 7 many special meetings of the general membership as well as the Board of Governors, were held, mostly in connection with the Hawaii Medical Service Association, and the preparedness program, building



up the aid stations and training the personnel. In this latter program the doctors were very active under the leadership of Dr. Robert Faus and the result of their work was demonstrated to their credit on December 7. Since the 7th, Dr. Arnold assumed the very difficult position of liaison officer between the Military Governor, the Army and the civilian physicians. The Society has tried to cooperate to the fullest in furthering the medical defense plans of the O.C.D. under his guidance.

Following the Blitz, and due to the blackout regulations and the restrictions on night driving, a change in procedure has been made necessary for the regular meetings of the Society. Instead of the general evening meetings on the first Friday of every month the Society now meets weekly at 9:00 a.m. on Thursday mornings in the Mabel Smyth Building auditorium. It was found desirable to have the doctors assemble at frequent intervals to keep informed of current plans and procedures under the defense program, and to enable them to act promptly in deciding questions of group policy. To facilitate this it was agreed to combine the regular Thursday morning clinic of the Queen's Hospital with the meetings of the society, the society taking the first half hour for announcements, discussion, and necessary action in emergency issues, and Dr. Hirsch taking over thereafter for an hour for clinic presentation. This has so far worked out very well and entirely to the satisfaction of the medical society, with an attendance of rarely less than 80 persons. The well prepared clinic presentations have been a satisfactory substitute for the former scientific programs of the society.

A report is given regularly at these meetings of the communicable disease status in the community. In this way the members are on the alert to any potential dangers threatening from this source.

Many members have been called to active duty with the Army and Navy and the Society found it necessary to consider the membership status of these. A policy regarding dues and assessments was adopted therefore, whereby all members in active service are exempt from the payment of these for the duration unless engaged in part-time practice.

The Society has an active Medical Milk Commission which meets regularly and which has had to face large problems this year. The great increase in population demanded an increase in milking herds and feed, which latter was difficult to obtain. This necessitated substitutes while the standards for certified milk remained unchanged. Defense work took laborers from the farms. When the blackout was instituted problems of sanitation and ventilation arose. The commission gave assistance on these problems. Although the bacterial count rose under some of these difficulties, it was quickly brought under control. The Commission employs a full-time secretary-laboratory worker, assisted by a part-time laboratory worker, and a doctor, part-time, to give medical supervision to the dairy employees.

The Board of Governors has been very vigilant and has exerted pressure in the violation of the Medical Practice Act in an attempt to protect the community against unlicensed physicians.

Charges that insurance companies were directing defense workers and accident cases to certain physicians

gave rise to an investigation, the result of which will be the appointment of a committee composed of defense worker employers, insurance companies and medical men to consider such problems.

No post graduate course is planned for this year for obvious reasons. A report of last year's post graduate activities would be redundant, having been reported extensively in the JOURNAL.

The Society has endeavored wherever possible to set itself up as a distribution center for the convenience of the doctors. In this manner gas masks, passes, finger printing, liquor permits, gasoline ration coupons, and diathermy permits have been handled.

#### Report of the Kauai County Medical Society

(Exhibit C)

I. UMAKI, M.D.  
Secretary

The Kauai County Medical Society met on every second Wednesday of the month regularly until the advent of the war. Following which meetings were called as often as the occasion demanded; regular meetings being held every month.

A program for the presentation of scientific papers was arranged at the beginning of the year so that at each month meeting some member has had a paper to present. Some of these have appeared in the JOURNAL. We were likewise fortunate to have such men as Drs. Compere, McKhann, Blankenhorn, and Emge present a series of post-graduate lectures with which all the men were much pleased.

A revised constitution and by-laws was drawn up and adopted by the society during the past year.

As previously reported the Kauai Medical Society has through the cooperation of all members organized what we believe to be an efficient civilian medical defense organization. Under the direction of Dr. V. A. Harl and Dr. S. R. Wallis every member has had a job to perform and has given his time and energy willingly.

Dr. Boyden added to the above report that Kauai has four civilian hospitals ranging in bed capacity from 50 to 150. These are not completed, but are coming along, materials and equipment having been ordered. The Kauai Society has lost 17% of its men to the Army and Navy.

#### Verbal Report of the Maui County Medical Society

(Exhibit D)

H. H. SEILER, M. D.

We have lost 25% of our men to the Army and Navy which puts a lot of extra work on those remaining. Meetings were held regularly. Dr. McArthur is in charge of the medical preparedness program since Dr. Burden went into the Army. We have established three new hospitals completely from scratch at the request of the Army. The first one opened three weeks ago, and the second one opens this week end.

#### Report of the Council

(Exhibit E)

R. O. BROWN, M.D.

The Council this year held only one meeting at which the outside islands were represented. In the interim the routine business of the Association was carried on by the Honolulu members of the Council.

The two major activities this year had to do with the JOURNAL and the medical service plan for plantation employees.

Reports were received from time to time on the progress of the JOURNAL and special authorization was given by the Council to print a thousand additional copies of the January (war) issue of the JOURNAL because of the special nature of the material it contained. This authorization was given with the understanding that the additional copies would be sold and pay for themselves.

When the tentative plan proposing to establish a medical service plan for plantation employees came to the attention of the Council, a copy of its provisions and an analysis of these were circulated to the county societies and to the individual members of the Association through the JOURNAL. At the December 4th meeting of the Council, at which councillors from the outside islands were present, this plan was thoroughly discussed and it was generally agreed that if a plan were to be adopted for the plantations it should be uniform throughout the Territory and it should be acceptable to the Territorial Medical Association. It was further recommended that the Association proceed to extend to the other counties a plan similar to the one already in operation in Honolulu, known as the Hawaii Medical Service Association plan, and that a representative of the Council appear before the Managers' meeting of the Hawaiian Sugar Planters' Association in December.

A counter plan subsequently was drawn up by the H.M.S.A. intended for territorial-wide use and the H.M.S.A. had begun negotiations with the plantation physicians on this island with the view of building a satisfactory plan for the plantation population, when the Blitz came. The subsequent occupation of both the plantation physicians and others with more acute problems has prevented further progress along this line to date.

In response to Dr. Arnold's request as Director of the Medical Services of the OCD, for recommendations concerning food handlers' examination calling attention to the inadequacies of the present examinations, the Council recommended that the food handlers' examination be either discontinued completely or regulations be set up to insure an adequate examination which should include chest X-ray and stool examinations.

At the meeting of December 4, it was proposed that a territorial-wide post graduate policy be formulated, but the Council voted to defer the matter for discussion at the Annual Meeting of the House of Delegates.

The matter of putting the library of the Honolulu County Medical Society on a territorial-wide basis by the assessment levied against the county societies at the rate of \$2.00 per member was discussed and action deferred until the Annual Meeting.

At the April 29 meeting wherein arrangements were made for the Annual Meeting, it was voted that registration fee of \$5.00 be charged to all members attending.

#### Report of the Secretary (Exhibit F)

R. O. BROWN, M.D.  
Secretary

The total regular membership of the Association is

272, a decrease of one over the previous year. By counties this membership is made up as follows:

	REGULAR MEMBERS	MEMBERS IN SERVICE	SERVICE MEMBERSHIP	ASSOCIATE, HONORARY OR LIFE MEMBERS
Hawaii	41	----	----	1
Honolulu	187	23	13	19
Kauai	16	----	----	2
Maui	28	5	----	1
	272	28	13	23

Total all classes—336

The total number of physicians practising medicine in the Territory as of June 1st is 356. Of those eligible, 314 belong to the Association, making 88%, as compared to 82% last year.

#### Treasurer's Report

Covering the Period  
May 1, 1941 - June 1, 1942  
(Exhibit G)

D. B. BELL, M. D.  
Treasurer

CASH ON HAND, May 1, 1941 .....	\$1,303.67
Checking Account .....	\$628.96
Savings Account .....	674.71

RECEIPTS .....	6,714.94
Membership dues .....	\$3,089.00
Registration fees—annual meeting .....	790.00
JOURNAL:	
Advertisements .....	1,077.45
Subscriptions .....	560.00
Cash sales .....	360.31
Miscellaneous:	
Refund—Projector .....	758.18
Refund—postage .....	80.00
	\$8,018.61

DISBURSEMENTS:	
Annual Meeting .....	582.85
JOURNAL .....	2,458.20
Postage .....	150.10
Mimeographing .....	7.00
Salary .....	1,800.00
Rental .....	325.00
Supplies .....	68.90
Furniture & Fixtures .....	149.65
Miscellaneous—including projector .....	1,103.80
	6,645.50

BALANCE June 1, 1942 .....\$1,373.11

The above includes \$225 registration fees for the 1942 meeting.

#### Report of the Cancer Committee (Exhibit H)

G. A. BATTEN, M.D., chairman

It was reported by your Committee last year that the Chamber of Commerce had made \$25,000.00 available for the purchase of a deep x-ray unit. It is a pleasure to be able to relate that a 400,000 K.V. x-ray deep therapy machine has been purchased and is now on hand at Queen's Hospital. It has not been installed because no permanent facilities exist for housing it. It appears to be the present plan to defer its installation until after the war when permanent quarters will be built for the x-ray department.

The reason assigned for the delay is that temporary quarters are not available and if available the cost of relocating the unit later on would require an additional expenditure.

It appears to your Committee that these obstacles should not be permitted to stand in the way. If necessary a small building could be erected. The cost of this and the expense of moving it to a permanent location after



the war would be negligible compared to the benefit that would accrue to human lives even over the period of one year, if the war should last no longer than that.

It is suggested that the urgency of the installation of this machine be stressed to the Board of Trustees of the Queen's Hospital since there are numerous cases in the hospitals who are in need of deep x-ray therapy for the treatment of cancer.

During the year addresses on cancer have been made by members of the Association before first aid units, N.Y.A. and other training classes, and an excellent film on cancer has been shown to many groups through the efforts of the Hawaii Health Education Council.

### Report of the Psychiatric Committee

(Exhibit I)

R. D. KEPNER, M.D., chairman

This year's Psychiatric Committee has succeeded in getting established the Hawaii Territorial Society for Mental Hygiene, which was Item VI of Dr. F. G. Ebaugh's recommendations made at the time of his survey here in 1937. Members of the Medical Association occupy prominent places in this Society.

After considerable preliminary discussion amongst the membership of the Psychiatric Committee, and some correspondence with various persons and groups on the mainland, the Committee met on December 4, 1941 to discuss three items: (1) the creation of a Territorial Committee for Mental Hygiene; (2) the formulation of a definite program for the education of the public in psychiatric matters, by a series of newspaper articles and addresses before various civic groups; and (3) the initiation of a series of scientific papers on the same subject to be presented before medical groups and published in the HAWAII MEDICAL JOURNAL. It was decided at that meeting to concentrate on the first and let the other two go until later.

The decision was transmitted to the Council of the Hawaii Territorial Medical Association with the following recommendation: "We respectfully recommend to the Council of the Territorial Medical Association, as a commendable project, the formation of a mental hygiene society for this community. We recommend that the Association lend its support and assistance to a general plan such as recommended by the National Committee for Mental Hygiene for state societies."

Although the Council approved this recommenda-

tion on December 4, 1941, the war intervened and nothing further was done about the matter until February. Again, after considerable discussion amongst ourselves and with various civic leaders known to be interested in mental hygiene, a meeting was arranged on April 29, 1942 with the following persons: Dr. A. L. Dean, Mrs. Charles F. Honeywell, Dr. W. Harold Loper, Dr. E. E. McNiel, Dr. Frank Midkiff, Dr. S. D. Porteus, and Miss Martha Wood, to learn whether it might be wise to launch such a society at the present time. It was the feeling of most of the persons attending that such a society should be formed, the more so because of the additional emotional problems produced by the war. However, it was believed advisable to discuss the matter further with a larger group before coming to any definite decision because no one wanted to see a society started if the prospects of its lasting were not too bright.

To that end, approximately eighty persons were invited to a meeting with the Psychiatric Committee on May 20, 1942. These persons included the members of the former Hawaii Mental Health Committee and numerous others known to be interested in the problem of mental health. Approximately fifty of those invited attended.

At the meeting on May 20, 1942, it was voted unanimously by those present to establish the Hawaii Territorial Society for Mental Hygiene; to make up its present membership from those present; and to elect a working committee of twelve persons to meet and perfect plans for further organization and activities. This working committee is composed of the following: Dr. R. O. Brown, Dr. A. L. Dean, Mr. O. F. Goddard, Mrs. Charles F. Honeywell, Dr. R. D. Kepner, Dr. E. E. McNiel, Dr. T. M. Mossman, Dr. F. J. Pinkerton, Dr. S. D. Porteus, Mrs. Katherine Ranck, Mr. O. W. Robinson, Miss Martha Wood. A meeting of this group is planned for June 10, 1942. Invited to sit in on the discussions are Major Sidney Posner, Department Surgeon's Office, Farrington High School; and Lt. Comdr. W. E. Kellum, Kaneohe Naval Air Station.

It is believed that this Society will be a very real force for good in the field of mental hygiene in the community, and it is hoped that all the members of this Association will lend their support to the Society. In conclusion, I wish to express my sincere gratitude and appreciation to the other members of the Psychiatric Committee: Dr. M. F. Chung, Dr. R. B. Faus, Dr. E. E. McNiel, Dr. Archie Orenstein, Dr. E. A. Stephens, Dr. T. L. Taylor; and also to Dr. A. L. Dean and Dr. F. J. Pinkerton who have been most helpful in this work.

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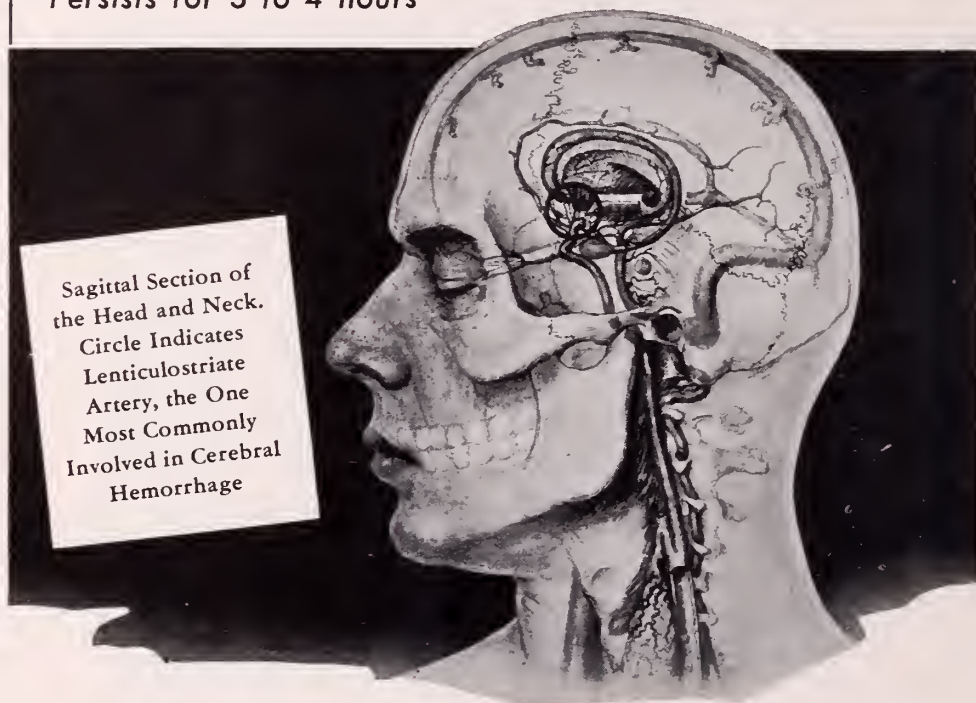
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